Final
Environmental Impact Statement

Panoche Valley Solar Facility
San Benito County, CA

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US Fish & Wildlife Service

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Title: Final Environmental Impact Statement (EIS) for Panoche Valley Solar Facility, San Benito County, California

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Abstract: Panoche Valley Solar, LLC (the applicant) is proposing to construct the Panoche Valley Solar Facility, a 247 megawatt photovoltaic solar generating facility in eastern unincorporated San Benito County, California. The proposed project site contains ephemeral drainages that have been determined to be jurisdictional waters of the U.S.

Construction of the proposed project requires a Department of the Army permit from the US Army Corps of Engineers to discharge fill material into these waters, in accordance with Section 404 of the Clean Water Act. The US Army Corps of Engineers, as the lead agency responsible for complying with the National Environmental Policy Act, made a preliminary determination that the proposed project constitutes a major federal action that may result in significant impacts on the environment, and that the preparation of an environmental impact statement was required.

The proposed facility would consist of a solar field of ground-mounted photovoltaic modules; an electrical collection system that converts generated power from direct current to alternating current and delivers it to a project substation; and a project substation that collects and converts the generated power from 34.5 to 230 kilovolts. The electricity would then be delivered, via a new on-site Pacific Gas and Electric Company switching station, to its existing Moss Landing-Panoche 230 kilovolt transmission line. Generated electricity would be sold to Southern California Edison under a long-term power purchase agreement.

Comments: The Draft EIS was distributed for public review and comment from September 11, 2015 to October 26, 2015. On October 6, 2015 and October 7, 2015, the USACE held public meetings on the Draft EIS. This Final EIS responds to the substantive comments received on the Draft EIS during the public review and comment period.

The Final EIS is available for review and comment online at the USACE's website:

http://www.spk.usace.army.mil/Missions/Regulatory

Written comments on the Final EIS may be sent to Ms. Lisa Gibson at the address above. Comments may also be submitted via email to Lisa.M.Gibson2@usace.army.mil. Please refer to identification number SPN–2009–00443 in all correspondence. The Final EIS is available for public review and comment for 30 days from the date of publication of the US Environmental Protection Agency's notice of availability in the *Federal Register*.

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APPENDICES

ACRONYMS AND ABBREVIATIONS

	Full Phrase
AADT	Average Annual Daily Traffic
AB	Assembly Bill
ACEC	Area of Critical Environmental Concern
ACHP	Advisory Council on Historic Preservation
ADSS	All-Dielectric Self-Supporting fiber
AFY	acre-feet per year
AMM	Avoidance and Minimization Measures
ANSI	American National Standards Institute
APCD	Monterey Bay Unified Air Pollution Control District
APE	area of potential effect
APLIC	Avian Power Line Interaction Committee
APM	Applicant-Proposed Measures
bgs	below ground surface
BLM	United States Department of the Interior, Bureau of Land Management
BMP	best management practice
BNLL	blunt-nosed leopard lizard
CAA	Clean Air Act
CalTrans	California Department of Transportation
CAISO	California independent system operator
CAL FIRE	California Department of Forestry and Fire Protection
CARB	California Air Resources Board
CBC	California Building Code
CCR	California Code of Regulations
CDF	California Department of Forestry
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act of 1970
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CHP	California Highway Patrol
CNDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
CO	carbon monoxide
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CREZ	Competitive Renewable Energy Zone
CTS	California tiger salamander
CWA	Clean Water Act of 1972
dB	decibel
dBA	decibel on the A-weighted scale
DPH	California Department of Public Health

ACRONYMS AND ABBREVIATIONS *(continued)*

	Full Phrase
DPS	distinct population segment
DWR	California Department of Water Resources
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EO	executive order
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FEMA	Federal Emergency Management Agency
FLPMA	Federal Land Policy and Management Act
g	ground acceleration
GIS	geographic information system
GKR	giant kangaroo rat
HMBP	Hazardous Materials Business Plan
HMP	Habitat Management Plan
HRRP	Habitat Restoration and Revegetation Plan
HUC	hydrologic unit code
KOP	key observation point
kV	kilovolt
lb	pound
Ldn	day-night average sound level
LEDPA	Least Environmentally Damaging Alternative
Leq	equivalent sound level
LLC	Limited Liability Corporation
LOS	level of service
LSAA	Lake and Streambed Alteration Agreement
M	moment magnitude
MBTA	Migratory Bird Treaty Act
$MMTCO_2e$	million metric tons carbon dioxide equivalent
MOA	memorandum of agreement
MPAC	Modular Protection Automation and Control building
$MTCO_2e$	metric tons of carbon dioxide equivalent
MW	megawatt
MW_{AC}	megawatt (alternating current)
MW_{DC}	megawatt (direct current)
MWh	megawatt hour

	Full Phrase
NAAQS	national ambient air quality standards
NAHC	California Native American Heritage Commission
NAS	Naval Air Station
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act of 1966
NMFS	National Marine Fisheries Service
NOI	Notice of Intent
NOx	mono-nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NRCS	United States Department of Agriculture, Natural Resources Conservation Service
NRHP	National Register of Historic Places
O&M	operation and maintenance
OHWM	ordinary high water mark
OPGW	optical ground wire
OSHA	Occupational Safety and Health Administration
PG&E	Pacific Gas & Electric
PLC	power line carrier
PM_{10}	particulate matter with an aerodynamic diameter of 10 microns or less
$PM_{2.5}$	particulate matter with an aerodynamic diameter of 2.5 microns or less
ppb	parts per billion
ppm	parts per million
PSD	prevention of significant deterioration
PV	photovoltaic
PVSF	Panoche Valley Solar Farm
RCRA	Resource Conservation and Recovery Act of 1976
RMP	resource management plan
ROW	right-of-way
RPS	Renewable Portfolio Standard
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCADA	Supervisory Control and Data Acquisition equipment
SF	sulfur hexafluoride
SHPO	State Historic Preservation Officer
SJKF	San Joaquin kit fox
SO_2	sulfur dioxide
SPCC	Spill Prevention, Control, and Countermeasure
SRA	State Responsibility Area
SR	State Route
SSC	species of special concern

	Full Phrase
SWPPP	Storm Water Pollution Prevention Plan
TCP	Traffic Control Plan
TDS	total dissolved solids
TMDL	total maximum daily load
TSP	tubular steel pole
ug/m^3	micrograms per cubic meter
US	United States
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGRP	US Global Research Program
USGS	United States Geological Survey
VOC	volatile organic compound
VRM	visual resources management
WCP	Weed Control Plan
WEEP	Worker Environmental Education Program
WMMP	Wetland Mitigation and Monitoring Plan
WSA	wilderness study area

EXECUTIVE SUMMARY

ES.1 INTRODUCTION

Panoche Valley Solar, LLC (the applicant) is proposing to construct the Panoche Valley Solar Facility, a photovoltaic (PV) generating facility in eastern unincorporated San Benito County, California (see **Figure ES-1**~~**Figure ES-1**~~). The proposed project site contains drainages that have been determined to be jurisdictional waters of the U.S. Construction of the proposed project requires a Department of the Army permit from the US Army Corps of Engineers (USACE) to discharge fill material into these waters, in accordance with Section 404 of the Clean Water Act.

In 2012, the USACE, as the lead agency responsible for complying with the National Environmental Policy Act (NEPA; 42 United States Code [USC], Sections 4321-4370h), made a preliminary determination that the proposed project constitutes a major federal action that may result in significant impacts on the environment and that the preparation of an environmental impact statement (EIS) was required.

This EIS has been prepared in accordance with NEPA, the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 Code of Federal Regulations [CFR], Parts 1500-1508), US Army Corps of Engineers Procedures for Implementing NEPA (33 CFR, Part 230), and Processing of Department of the Army Permits (33 CFR, Part 325, Appendix B, NEPA Regulation).

The US Fish and Wildlife Service (USFWS) is a cooperating agency for this EIS. It has responsibility for issuing a biological opinion on the proposed project under Section 7 of the Endangered Species Act. The USFWS issued its biological opinion for the applicant's proposed project on October 5, 2015; the biological opinion is included in **Appendix G** of this Final EIS.

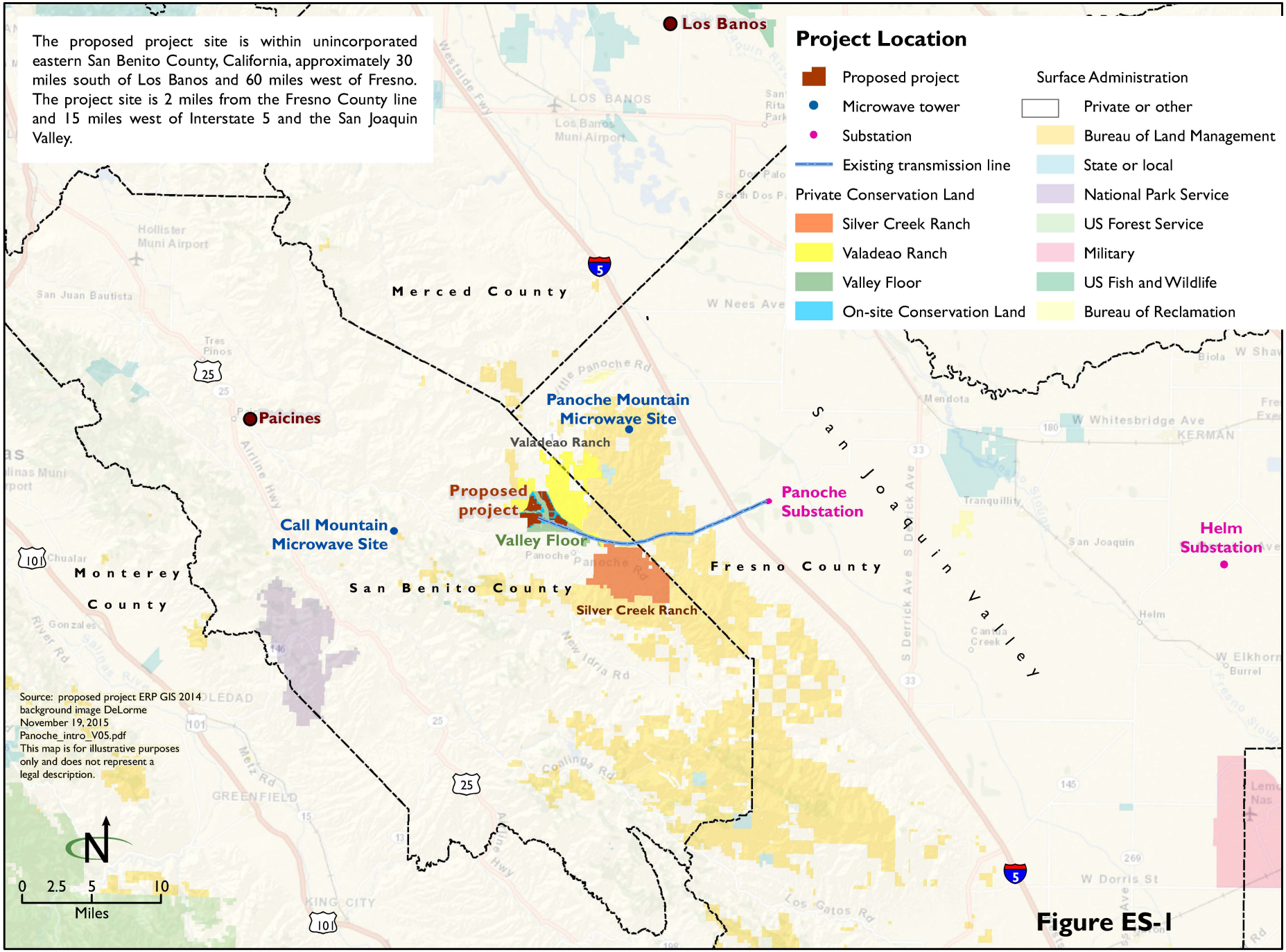
The proposed project site is within unincorporated eastern San Benito County, California, approximately 30 miles south of Los Banos and 60 miles west of Fresno. The project site is 2 miles from the Fresno County line and 15 miles west of Interstate 5 and the San Joaquin Valley.
Project Location
Proposed project
Microwave tower
Substation
Existing transmission line
Private Conservation Land
Silver Creek Ranch
Valadeao Ranch
Valley Floor
On-site Conservation Land
Surface Administration
Private or other
Bureau of Land Management
State or local
National Park Service
US Forest Service
Military
US Fish and Wildlife
Bureau of Reclamation
Los Banos
Merced County
Paicines
Panoche Mountain Microwave Site
Valadeao Ranch
Proposed project
Panoche Substation
Call Mountain Microwave Site
Valley Floor
Fresno County
San Benito County
Silver Creek Ranch
Monterey County
San Joaquin Valley
Helm Substation
Source: proposed project ERP GIS 2014
background image DeLorme
November 19, 2015
Panoche_intro_V05.pdf
This map is for illustrative purposes only and does not represent a legal description.
N
0 2.5 5 10
Miles

Figure ES-1

The applicant has applied for a Department of the Army Section 404 permit from the USACE to allow the discharge of fill into ~~0.122~~0.121 acre of ephemeral stream channels classified as waters of the U.S. The areas affected are ~~Panoche Creek and~~ Las Aguilas Creek on the western side of the project footprint and three unnamed drainages on the eastern side of the project footprint.

The Draft EIS for the Panoche Valley Solar Facility project was published on September 11, 2015. Changes to the Final EIS text are indicated by underlining for new text and ~~strikethrough~~ for deleted text. The primary revisions include the following:

- Reductions in the proposed project footprint (and associated reductions in project impacts) and increases in the acreage of conservation lands under the applicant's preferred alternative (Alternative A). These changes were a result of the applicant's consultation with the California Department of Fish and Wildlife (CDFW), as reflected in the CDFW incidental take permit issued on November 20, 2015
- Removal of the Panoche Creek bridge crossing resulting from further discussion with the Hollister Fire Department
- Changes in affected environment information provided through public comment
- Changes in the environmental impact analysis resulting from public comment or from the changes described in the bullets above
- Minor editorial revisions

ES.2 PROJECT PURPOSE AND NEED

In accordance with NEPA, an EIS must briefly specify the underlying purpose and need that the agency is responding to (40 CFR, Part 1502.13). When considered together, the purpose and need establish the basic parameters for identifying the reasonable range of alternatives to be considered in the EIS. Under the USACE regulatory program, if the scope of analysis for the NEPA document covers only the proposed activity that requires a permit, then the underlying purpose and need for that activity should be stated. However, if the scope of analysis covers a more extensive project, only part of which requires a Department of the Army permit, then the underlying purpose and need of the entire project should be stated (33 CFR, Part 325, Appendix B[9][b][4]).

The applicant submitted a permit application to the USACE to construct a utility-scale, solar PV energy generating facility in the Panoche Valley region of San Benito County. The power generated by this project would assist the State of California and its retail suppliers of electricity meet California's mandatory Renewable Portfolio Standard (RPS). This law (2011 Senate Bill SBX 1-2) requires electricity providers to procure 33 percent of their electricity from renewable energy sources by 2020. The project would also assist the state of

California meet targeted reductions in greenhouse gas emissions to 1990 levels by 2020 (California Global Warming Solutions Act of 2006 [Assembly Bill 32]).

The applicant executed a power purchase agreement with Southern California Edison in August 2014. Under this agreement, the applicant is obligated to deliver 247 MW_{AC} of power annually for 20 years beginning in 2019.

The USACE takes an applicant's purpose and need statement into account when defining the purpose and need of a proposed action under NEPA; however, in all cases it exercises independent judgment in defining the purpose and need.

As part of the requirements of the US Environmental Protection Agency's (EPA's) Section 404 (b)(1) Guidelines for the Specification of Disposal Sites for Dredged or Fill Material, the USACE may identify a basic project purpose and an overall project purpose to identify practicable alternatives to a proposed action. The basic project purpose is identified in those cases where a proposed project would result in a discharge into a special aquatic site (i.e., sanctuaries and refuges, wetlands, mudflats, vegetated shallows, coral reefs, and riffle and pool complexes). Because the applicant's preferred alternative ~~project~~ ~~proposed~~ project would not result in a discharge into a special aquatic site, the basic project purpose has not been identified.

The USACE has determined the purpose of the applicant's preferred alternative ~~proposed project~~ under NEPA, and the overall project purpose under the Section 404(b)(1) Guidelines of the Clean Water Act to be as follows:

> The overall project purpose is to construct an approximately 247 MW_{AC} solar PV energy generating facility and associated transmission and support facilities in the west-central portion of California's Central Valley (generally encompassing portions of San Benito, Merced, Madera, Fresno, and Kings Counties).

The USACE uses the overall project purpose to define alternatives for evaluation in an EIS and to determine if the applicant's preferred alternative ~~proposed project~~ is the least environmentally damaging practicable alternative (LEDPA) under the Section 404(b)(1) Guidelines. According to USACE guidance in its 2009 Standard Operating Procedures, "The overall project purpose should be specific enough to define the applicant's needs, but not so restrictive as to constrain the range of alternatives that must be considered under the Section 404(b)(1) Guidelines."

ES.3 SCOPE AND FOCUS OF THIS ENVIRONMENTAL IMPACT STATEMENT

This EIS presents information on the potential impacts of issuing a permit to construct the applicant's preferred alternative ~~proposed project~~. The USACE's decision on whether to issue a Clean Water Act Section 404 permit requires compliance with NEPA and the interpretive guidelines established by CEQ and the USACE's NEPA implementing procedures.

This EIS achieves the following:

- Describes the affected environment relevant to potential impacts of the applicant's preferred alternative ~~proposed project~~ and alternatives
- Analyzes potential significant environmental impacts from the applicant's preferred alternative ~~proposed project~~ and alternatives
- Identifies ways that environmental impacts could be avoided, reduced, or mitigated
- Identifies and characterizes cumulative impacts that could result from the applicant's preferred alternative ~~proposed project~~ and alternatives in relation to other past, present, or reasonably foreseeable future actions
- Provides the USACE with environmental information for use in decision making to protect, preserve, and enhance the human environment and natural ecosystems
- Discloses to the public the environmental information and analyses that the USACE will base its decisions on

The focus of the environmental analysis for each alternative includes the direct and indirect effects of constructing a solar facility. This includes short-term effects from construction activities and long-term effects from the presence of a solar facility. It also includes the effects from operational and maintenance activities associated with operating the facility, which are considered an indirect effect of the construction of the solar facility. Impacts associated with operational and maintenance activities are included within the NEPA scope of analysis, as they are indirect effects caused by the construction of a solar facility and may affect federally listed threatened and/or endangered species. However, these activities, because they would not result in the discharge of dredged and/or fill material into waters of the U.S., do not require a Section 404 permit and are not within USACE jurisdiction. Decommissioning of the proposed solar facility is not included in the scope of analysis because activities that would occur at the end of the 30-year project under decommissioning are speculative, given potential changes in technology over that time. It is also possible that rather than being decommissioned, the proposed facility could be repowered. The decision to not include decommissioning or repowering within the scope of analysis does not preclude the potential need to evaluate decommissioning or possible repowering under NEPA in the future, if these activities are subject to federal control and responsibility.

ES.4 PROJECT DESCRIPTION AND ALTERNATIVES

The USACE's proposed action is to make a permit decision on the permit application submitted by Panoche Valley Solar, LLC to construct the Panoche Valley Solar Facility in eastern San Benito County, California (the applicant's

proposed project, described below). The USACE is neither an opponent nor a proponent of the applicant's proposal. Decision options available to the USACE are to issue the permit, issue the permit with modifications or conditions, or deny the permit.

ES.4.1 Evaluation of Alternatives

The alternatives analysis is the heart of an EIS, and agencies must rigorously explore and objectively evaluate all reasonable alternatives. For alternatives that were eliminated from detailed study, agencies must briefly discuss the reasons for their having been eliminated (40 CFR, Part 1502.14).

Reasonable alternatives are those that are practical or feasible from a technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant (46 *Federal Register* 18026 [Question 2a]). Reasonable alternatives do not include those that are remote or speculative or that do not achieve the project purpose and need.

During the analysis, the alternatives developed for the EIS took into consideration the following:

- Applicant requirements in siting a utility-scale solar generating facility
- The overall project purpose, as defined by the USACE
- Criteria related to cost, logistics, and existing technology, including the RPS and other federal, state, and local requirements
- Section 404(b)(1) alternatives information submitted by the applicant
- Agency and public input obtained during public noticing of the project by the USACE in 2010 and public scoping for the EIS in 2012
- Input from the USFWS and CDFW on project configurations to reduce impacts on federal and state listed species

The USACE considered alternative on-site configurations, alternative off-site locations, and alternative technologies. Alternatives carried forward for detailed analysis were a no action (no build) alternative, a no action (no USACE permit) alternative, the applicant's proposed project for which it applied for a Department of the Army permit and which, per USACE regulations at 33 CFR Part 325, Appendix B, will be identified as the Applicant's Preferred Alternative (Alternative A) in this Final EIS, one on-site alternative (Alternative B), and one off-site alternative (Alternative C). All are described below.

ES.4.2 No Action Alternative

CEQ regulations implementing NEPA require consideration of a no action alternative (40 CFR 1502.14d). In accordance with USACE NEPA regulations, the no action alternative is one that results in no construction requiring a

USACE permit. This could be accomplished either by the applicant modifying the project to eliminate work under the jurisdiction of the USACE or by the USACE denying the permit (33 CFR, Part 325, Appendix B). Therefore, the no action alternative could result in one of two potential scenarios:

- The applicant would not build ~~the proposed project~~a 247 MW solar facility.
- The applicant would build an approximately 247 MW solar facility in ~~the proposed project, but in~~ a manner that did not require a USACE permit

To account for either possible outcome, the USACE has determined that it is appropriate to evaluate both no action scenarios in the EIS. To differentiate between the two no action scenarios, they are referred to as the no action (no build) alternative and the no action (no USACE permit) alternative and are described below.

No Action (No Build) Alternative

Under the no build alternative, a solar facility would not be developed at the proposed project site. Environmental conditions would remain in the status quo, and current land uses would continue.

No Action (No USACE Permit) Alternative

Due to the location of waters of the U.S. on the project site, the USACE determined that it is appropriate to analyze a no permit alternative that constructs a 247 MW solar facility in a manner that avoids waters of the U.S. and the subsequent need for a Department of the Army permit from the USACE. The USACE has not yet made a determination on whether this alternative is practicable under the Section 404(b)(1) Guidelines or whether it would result in other significant adverse impacts, including impacts on sensitive biological resources. The terms "no action (no permit) alternative" and "no action (no USACE permit) alternative" are used interchangeably in the EIS.

Under the no action (no USACE permit) alternative, Panoche Valley Solar, LLC would construct a 247 MW, PV solar generating facility within a 2,506-acre project footprint. This facility would be similar to the applicant's ~~proposed project~~preferred alternative described under Alternative A, below, except that it would construct a free-span bridge crossing~~s~~ over Las Aguilas ~~and Panoche~~ Creek~~s~~. This would eliminate the need to discharge fill into these waters of the U.S. but would still allow for adequate emergency access to the site required by the Hollister Fire Chief (Hollister Fire Department 2014, 2015). It would also avoid impacts on the three ephemeral drainages on the eastern side of the project footprint that are waters of the U.S.

Applicant-proposed measures, mitigation measures developed through the San Benito County EIR process, and PG&E avoidance and minimization measures for

telecommunication network upgrades that are part of the applicant's ~~project proposed~~ preferred alternative would also be part of the no action (no USACE permit) alternative evaluated in this EIS.

Key features of the no action (no USACE permit) alternative are described in **Table ES-1**.

Table ES-1
No Action (No USACE Permit) Alternative Project Features

Project Feature	Area Impacted
Solar arrays	1,584 acres
Solar arrays, potential	60 acres
Project perimeter roads (including pullouts)	30 acres
Substation, switching station, and O&M building	12 acres
Graded areas[2] (outside of other project features)	106.5 acres
230 kV loop-in tubular steel poles (TSPs)	250 square feet
Perimeter fencing	0.06 acre
Vasquez County Road[3]	4 acres
Permanent impact areas	*1,796 acres*
Temporary impact areas	*710 acres*
Total Permanent Impacts[1]	**2,506 acres**

Notes:
[1]The project footprint is 2,506 acres, the acreage of the applicant's proposed project (Alternative A) evaluated in the Draft EIS. The maximum total permanent disturbance is estimated to be 1,796 acres. While no grading would occur within jurisdictional waters of the U.S. on the eastern portion of the project site, an additional 60 acres outside of the Alternative A solar array footprint could be impacted from the reconfiguring of solar arrays outside of waters of the U.S.
[2]Limited grading is expected to be required because of the nearly flat terrain. Grading would be required on slopes greater than 3 percent for PV power blocks. Grading for the no action (no permit) alternative would include approximately 347.5 acres (195 acres for arrays; 30 acres for roads; 12 acres for the substation, switching station and O&M building; 4 acres for Vasquez County Road; and 106.53 acres for other grading areas) of proposed area that would be graded.
[3]Vasquez County Road would be replaced with a new road that would run outside of the project fence line south of Las Aguilas Creek (outside of Valley Floor Conservation Lands).

Note that the no action (no USACE permit) alternative evaluated in the Final EIS is the same as evaluated in the Draft EIS (with the exception that the free-span bridge crossing over Panoche Creek would no longer be required).

ES.4.3 Alternative A (Applicant's ~~Proposed Project~~Preferred Alternative)

The applicant is proposing to construct an approximately 247 MW PV generating facility on ~~2,506~~2,154 acres (project footprint). The project footprint is in unincorporated eastern San Benito County, California, approximately 30 miles south of Los Banos and 60 miles west of Fresno. The site is 2 miles from the Fresno County line and 15 miles west of Interstate 5 and the San Joaquin Valley. The solar facility and all associated land would be on property that is controlled by the applicant.

The proposed solar facility would consist of the following:

- A solar field of ground-mounted PV modules
- An underground electrical collection system that converts generated power from direct current to alternating current
- A project substation that collects and converts the alternating current from 34.5 kilovolts to 230 kilovolts
- A switching station that delivers the generated power to the state electrical grid

Key features of the applicant's ~~proposed project~~preferred alternative (Alternative A) are described in **Table ES-2~~Table ES-1~~**.

Table ES-2
Alternative A (Applicant's ~~Proposed Project~~Preferred Alternative) Project Features

Project Feature	Area Impacted
Solar arrays	~~1,629~~1,529 acres[1]
Project perimeter roads (including pullouts)	30 acres
Substation, switching station, and O&M building	12 acres
Graded areas (outside of other project features)[2]	~~106.5~~101 acres
230 kV loop-in tubular steel poles (TSPs)	250 square feet
Trenching and foundations next to arrays	12~~.41~~ acres
Perimeter fencing	~~0.06~~0.2 acre
Vasquez County Road[3]	4 acres
Permanent impact areas	*1,688.2 acres*
Temporary impact areas	*~~712~~ 465.8 acres*
Total project footprint	**~~2,506~~2,154 acres**

[1] Includes foundations, direct current trench, alternating current trench, grading within the solar arrays, access corridors, and solar array work areas. Solar panels and associated electrical equipment would be installed on approximately 185,000 support post foundations. Posts would be steel I-shaped sections with a cross sectional area of 4.5 square inches each. Includes 2.33 acres of foundations for posts, inverters, and transformers~~Includes 2.33 acres for foundations, 26.64 acres of direct current trench, 8.84 acres of alternating current trench, 205.47 acres of grading, and 1,385.72 acres of solar array work areas. Solar panels and associated electrical equipment would be installed on approximately 185,000 support post foundations. Posts would be steel I-shaped sections with a cross sectional area of 4.5 square inches each~~.

[2] Limited grading is expected to be required because of the nearly flat terrain. Grading would be required on slopes greater than 3 percent for PV power blocks. ~~Final grading plans for the project are under development; however, t~~The applicant's preferred alternative ~~proposed project~~ includes approximately ~~358~~ 352 acres of proposed area that would be graded: 205.47 acres for arrays, 30 acres for roads, 4 acres for Vasquez County Road, ~~106.53~~100.53 acres for other grading areas, and 12 acres for the substation, switching station, and O&M building.

[3] Vasquez County Road would be replaced with a new road that would run outside of the project fence line south of Las Aguilas Creek (outside of the Valley Floor Conservation Land).

In addition, the applicant is proposing to conserve all lands in the project site that are outside of the project footprint to maintain and enhance habitat conditions for federal and state listed species. Approximately 2,514 acres interspersed throughout and next to the project footprint would be left undisturbed. This area would be designated as Valley Floor Conservation Lands. Another 442 acres of On-Site Conservation Lands contiguous with the project footprint would also be placed into conservation. ~~It would~~These lands include areas with dense populations of wildlife that are being avoided, wildlife movement corridors within on-site drainages and 100-year floodplains, ~~and~~ as well as open space in the southern portion of the project site.

The applicant is also proposing to permanently preserve and manage two large ranches: the Valadeao Ranch Conservation Lands (10,772 acres) and the Silver Creek Ranch Conservation Lands (10,890 acres). These ranchlands are contiguous with the project footprint and with each other. Conservation lands are being proposed as mitigation to offset potential impacts on listed species from constructing and operating the proposed solar facility. Through consultation with the CDFW since the Draft EIS was published, the applicant is also proposing to provide permanent protection and management of at least 1,000 acres of Additional Conservation Lands. These Additional Conservation Lands would be located within the Panoche Valley and approved in advance by CDFW. These lands would be high-quality, in-kind habitat for giant kangaroo rat. The applicant would secure these Additional Conservation Lands prior to the start of construction.

In total, the applicant ~~would~~ is proposing to conserve ~~24,176~~25,618 acres. The lands, which are part of the applicant's ~~proposed project~~preferred alternative, would be preserved and managed in perpetuity through a conservation easement. Most of these lands are in eastern San Benito County; a small portion is in western Fresno County.

The current project output is approximately 339 megawatts of direct-current (MW_{DC}) power, or 247 megawatts of alternating current (MW_{AC}) power. This output is based on the current project design and current PV panel technology. The actual output at the time the facility is brought online would depend on PV technology and uncertainties, such as line losses. Actual output may be greater than the estimated output at project startup or over the life of the facility as solar technology improves.

Power from the project would be delivered via the Pacific Gas & Electric Company (PG&E) Moss Landing-Panoche 230 kilovolt (kV) transmission line. It runs in an east-west direction through the project site. The applicant and PG&E signed a large generator interconnection agreement for the project in January 2014. This agreement confirms that the project's electricity output would be deliverable to the transmission grid; it also specifies the facilities that would be

required to interconnect the project with the PG&E Moss Landing-Panoche 230 kV transmission line.

The applicant and Southern California Edison executed a power purchase agreement for the project in August 2014. Under this agreement, Southern California Edison is obligated to purchase and the applicant is obligated to deliver 247 MW_{AC} of power annually for 20 years beginning in 2019.

In order to interconnect the proposed solar facility~~project~~, PG&E would make the following telecommunication upgrades to ensure reliability of the system before interconnecting the proposed ~~project~~solar facility:

- Primary Telecommunication Upgrades. PG&E proposes to install optical ground wire (OPGW) along 17 miles of its Panoche-Moss Landing 230 kV transmission line, between the new substation on the project site and the PG&E Panoche Substation in Fresno County. Where the existing 230 kV transmission line crosses under two existing 500 kV transmission lines, about 1.5 miles west of the Interstate 5 crossing, PG&E would install all-dielectric self-supporting (ADSS) fiber for approximately 4,650 feet on 12 existing wood distribution poles north of the 230 kV transmission line. OPGW and ADSS would provide telecommunication services between electrical substations and generating facilities or other substations.
- Secondary Telecommunication Upgrades. PG&E proposes to establish a secondary telecommunication path to ensure system reliability. This secondary system would be a microwave communication system that would include constructing a new 100-foot microwave tower at the project site and at PG&E's Helm Substation in Fresno County and collocating microwave equipment on existing microwave towers on Call Mountain and Panoche Mountain.

The applicant's ~~proposed project~~preferred alternative includes applicant-proposed measures, mitigation measures developed through the San Benito County EIR process, and PG&E avoidance and minimization measures for telecommunication network upgrades. These measures were developed to avoid and minimize impacts on the environment from constructing the proposed ~~project~~solar facility.

The measures described in this EIS have been committed to by the project applicant and are required as conditions of approval as part of the project's approval and CEQA clearance by San Benito County. These measures will be included in a mitigation monitoring and reporting plan prepared by the project applicant, implemented as required under CEQA, and enforced by San Benito County, as the lead agency under CEQA. As such, these measures are

considered part of the applicant's ~~proposed project~~preferred alternative evaluated in this EIS.

Under the applicant's ~~proposed project~~preferred alternative, emergency egress and access roads would cross ~~Panoche Creek,~~ Las Aguilas Creek~~,~~ and three unnamed ephemeral drainages on the eastern side of the project footprint that are subject to Department of the Army permitting under Section 404(b)(1) of the Clean Water Act. Under Alternative A, the applicant would use a single-span bridge~~s~~ to cross Las Aguilas Creek ~~and Panoche Creek~~. The three unnamed drainages would be crossed using a pipe arch culvert, low water crossings, and roadside drainage features, respectively. The perimeter fence and the grading for solar panel installation would also occur within these eastern drainages.

In total, the applicant's ~~proposed project~~preferred alternative would discharge fill material into ~~0.122~~0.121 acre (approximately 3,504 linear feet) of jurisdictional ephemeral stream channels on the project footprint. The applicant has avoided impacts to all other waters of the U.S. within the project footprint and has proposed measures to avoid, minimize, and compensate for impacts to waters of the U.S. The applicant is also proposing 0.096 acre of potential impact to waters of the U.S. associated with debris removal at two locations on the off-site conservation lands.

ES.4.4 Alternative B (On-Site Alternative)

Under Alternative B, the applicant would construct the proposed Panoche Valley Solar Facility and PG&E would perform primary and secondary telecommunication network upgrades, as described under Alternative A. Emergency egress and access roads for the project would cross ~~Panoche Creek,~~ Las Aguilas Creek~~,~~ and three unnamed drainages on the eastern side of the project footprint that are subject to permitting under Section 404(b)(1) of the Clean Water Act. Under Alternative B, the applicant would use a multi-span bridge~~s~~ to cross Las Aguilas Creek ~~and Panoche Creek~~. Crossings for the three unnamed drainages would be the same as described under Alternative A.

Under Alternative B, the applicant would discharge fill material into approximately 0.002 acre of Las Aguilas Creek~~, approximately 0.002 acre of Panoche Creek,~~ and approximately 0.12 acre within three unnamed drainages on the eastern side of the project site, for a total discharge of fill into ~~0.124~~0.122 acre. The bridge construction would temporarily disturb adjacent upland areas during construction. Applicant-proposed measures, mitigation measures developed through the San Benito County EIR process, and PG&E avoidance and minimization measures for telecommunication network upgrades that are part of the applicant's ~~proposed project~~preferred alternative would also be part of the action evaluated under Alternative B.

ES.4.5 Alternative C (Off-Site Alternative, Westlands CREZ)

Under Alternative C, a 247 MW photovoltaic solar facility with project features similar to those described under Alternatives A and B would be constructed on 2,500 acres within the Westlands Competitive Renewable Energy Zone (CREZ) in Fresno and Kings Counties.

ES.4.6 Alternatives Considered but Rejected

The USACE evaluated a range of reasonable alternatives to the applicant's ~~proposed project~~preferred alternative using alternatives screening criteria described in detail in **Section 2.3**. The alternatives that were considered but not carried forward for detailed analysis are listed below. **Section 2.8** describes each alternative and the reason it was eliminated from detailed consideration.

- Alternative On-Site Configurations. The USACE evaluated on-site alternatives greater than 247 MW, on-site alternatives less than 247 MW, CDFW's No Fill Alternative, and two alternative technologies for crossing Las Aguilas Creek ~~and Panoche Creek~~. None of these alternatives met the overall project purpose, so they were eliminated from detailed consideration.
- Alternative Site Locations. The USACE evaluated five off-site alternatives, including the Brownfield-Kettleman City Alternative, Moss Landing-Panoche Alternative, Panoche Ranch Alternative, Firebaugh Alternative, and Panoche Substation Alternative. None of these alternatives met the overall project purpose, so they too were eliminated from detailed consideration.
- Alternative Technologies. The USACE evaluated alternative technologies for providing renewable energy, including distributed solar generation, alternative solar technologies, and conservation and efficiency measures. None of these alternatives met the overall project purpose, so they were eliminated from detailed consideration as well.

ES.5 AGENCY AND PUBLIC COORDINATION AND SCOPING PROCESS

Public participation is an important part of NEPA and the Section 404 permitting process. Federal public participation activities conducted in support of this EIS are described below.

ES.5.1 Scoping

Project scoping identifies issues of concern early in the EIS process. NEPA requires that the lead agency invite affected federal, state, and local agencies, any affected Native American tribes, and other interested organizations and persons to participate in the scoping process. Scoping provides the public with the opportunity to identify environmental issues, concerns, and opportunities to be analyzed in the EIS.

In the *Federal Register* on July 19, 2012 (*Fed. Reg*. Vol. 77, No. 139, p. 42488), the USACE initiated a 30-day scoping period for this EIS; this period was extended by nearly 20 days to end on September 7, 2012. The NOI was published in the *Hollister Free Lance* on July 31 and August 3, 2012. Also, it was mailed to federal, state, and local agencies, organizations, and individuals known to have an interest in the project. The NOI invited the public to provide information on environmental impacts that could occur as a result of the ~~proposed~~ project as proposed in 2012. Copies of these materials are in **Appendix A** of this EIS.

Public scoping meetings were held on August 21, 2012, at the Panoche School in Paicines, California, and on August 22, 2012, at the Veterans Memorial Building in Hollister, California. The meetings began with an open house that served as an informal question and answer session, followed by a formal presentation and oral comments. Eleven people attended the scoping meeting in Paicines, and six entered comments into the public record; thirty people attended the scoping meeting in Hollister, and nine entered comments into the public record. A court reporter recorded the formal presentations and oral comments to accurately capture the information presented at the meetings.

The scoping period ended on September 7, 2012. Twenty written comment letters were submitted by the following agencies, tribes, and organizations and by 12 individuals (in all, 21 individuals commented with either written or oral comments):

- US Environmental Protection Agency
- Valentin Lopez, Amah Mutsun Tribal Band of Costanoan/Ohlone Indians
- Luis Alejo, Assembly Member, 28th District
- California Audubon Society
- Center for Biological Diversity
- Defenders of Wildlife
- Santa Clara Valley Audubon Society
- Citizens Committee to Complete the Refuge
- Sierra Club, Loma Prieta Chapter

The issues raised in the oral and written comments are presented in **Table ES-3**~~**Table ES-2**~~. Approximately a third of the comments focused on biological resource issues. The comments received during scoping were similar in substance and nature to those received during the USACE public noticing periods in 2010 and 2011.

Table ES-3
Summary of Scoping Issues

Issue	Summary of Comments by Issue
Biological resources	Most of the scoping comments focused on biological issues, especially impacts on sensitive and protected species, migratory birds, and grassland ecosystems. Commenters requested a full accounting of sensitive species, a thorough analysis of project and cumulative impacts, a description of measures to avoid, minimize, and mitigate project impacts, and provisions of mitigation, monitoring, and translocation plans. The EPA and other commenters requested an analysis of the potential for habitat fragmentation, identification and analysis of compensatory mitigation proposals, and consultation with the USFWS and CDFW to incorporate lessons learned from other renewable projects and recent guidance to avoid and minimize adverse effects on sensitive species. Commenters also requested that the EIS analyze impacts from shading and alteration of rainfall on vegetation and species due to panel installation and impacts on species from pile installation and construction noise. The EPA also asked that the EIS include an invasive weed management plan. Several environmental conservation organizations identified the Panoche Valley as an important bird area, and some expressed concern that the quality and quantity of mitigation lands would not compensate for the loss of core habitat.
Water resources	The EPA and other commenters requested an estimation of the quantity of water required during construction and operation, the proposed source of the water, a description of water rights permitting and the status of water rights in the basin, the potential impact on other water users in the area, and the potential impacts on surface and groundwater. The EPA also requested an analysis of technologies that can be used to minimize or recycle water and whether it would be feasible to use other sources of water. The agency requested that the impacts on waters of the U.S. be identified and floodplains and stormwater flow be analyzed. Some commenters expressed concern over potential contaminants leaching from solar facility equipment.
Alternatives	The EPA indicated that the EIS should include a robust discussion of alternatives, including alternative sites, capacities, and technologies, and that an environmentally preferable alternative be identified. It requested that the EIS provide a clear discussion of the reasons for eliminating alternatives not discussed in detail, how each alternative was developed, how it addresses each project objective, and how it will be implemented. Both local commenters and nonprofit organizations asked to see alternative locations for the site, including in the Westlands Competitive Renewable Energy Zone; alternatives to utility-scale solar, including rooftop solar and smaller facilities located closer to users; and more efficient solar panels. Some commenters requested an alternative that avoided all stream crossings.
Socioeconomics	A number of individuals had concerns over the impact the facility would have on the value of their property, local businesses, tourism, Panoche schoolchildren, and the community. One commenter expressed concerns about housing impacts during construction due to the number of temporary workers. Some commenters expressed support of the project for the potential economic benefits it could have on the regional economy.

Table ES-3
Summary of Scoping Issues

Issue	Summary of Comments by Issue
Public health and safety/hazardous materials and waste	The EPA requested that the EIS identify hazardous waste types and volumes, applicability of state and federal hazardous waste requirements, and mitigations that include minimizing generation of hazardous waste. Commenters expressed concern about naturally occurring arsenic, pesticide residue, and potential for valley fever from construction-generated dust. Some expressed concern over potential soil and water contamination from the project. Commenters requested that the EIS address impacts on emergency service providers and waste disposal at the end of solar panel life.
Noise	Individual commenters expressed concerns over the levels and duration of construction-related noise, including that from post installation and traffic, the change in background noise levels in a rural environment, impacts on Panoche schoolchildren, and impacts on livestock and domestic and wild animals. One commenter requested that the EIS evaluate operational noise levels.
Air quality	The EPA requested that the EIS estimate construction and operational air emissions, identify measures to minimize emissions, and include a draft construction emissions mitigation plan. A number of individual commenters expressed concerns over construction-related impacts on air quality, primarily fugitive dust impacts from soil disturbance.
Cumulative impacts	The EPA requested an in-depth cumulative impacts analysis, including identification of cumulative projects, geographic area, and temporal boundaries; current conditions, trends, and future conditions; parties responsible for minimizing impacts; and opportunities to minimize impacts. The agency also requested that the EIS evaluate impacts from the additional power supply and cumulative impacts associated with the transmission needs of other reasonably foreseeable projects. Commenters requested that the EIS analyze cumulative impacts on sensitive species from solar development in the region. Some commenters requested the EIS analyze cumulative impacts on waters of the U.S. and on species that depend on those waters.
Project description and design	Several commenters requested details on the applicant's proposed project, made suggestions about the design and implementation of the project, or provided opinions on solar technology. Commenters requested that information on interconnection and transmission be included in the EIS, including requirements for upgrades. One commenter requested an accounting of acreage required for roads and conduit. Some commenters suggested the use of a more efficient photovoltaic panel to reduce the project footprint.
Fire	Commenters requested that the EIS analyze the potential fire risks from the proposed project and measures that would be taken to minimize this risk. Individuals expressed concern that the project would increase the risk of fire and expressed concern over firefighter response times.

Table ES-3
Summary of Scoping Issues

Issue	Summary of Comments by Issue
Cultural resources	The EPA requested that the EIS describe the process and outcome of government-to-government consultation with tribal governments, address the existence of sacred sites in the area, and provide a summary of coordination with tribes and the state historic preservation office (SHPO), including identification of sites eligible for listing on the National Register of Historic Places (NRHP) and development of a cultural resource management plan. The Amah Mutsun Tribal Band of Costanoan/Ohlone Indians expressed concerns that the proposed project would negatively affect sacred lands and damage resources with ecological and cultural significance. The tribe expressed specific concerns on impacts on subsurface resources and requested that the applicant hire a tribal representative to monitor all ground disturbance activities, including the removal, repair, or replacement of any solar panel pole.
Traffic and transportation	Individual commenters expressed concerns about construction-related traffic on area roadways, specifically the volume of traffic, hazardous road conditions, and degradation of already poor roads.
Purpose and need	The EPA indicated that the EIS should include a strong rationale for the proposed project. The agency, along with several other commenters, requested identification of power purchasers and how the proposed project would help meet California's renewable portfolio standards.
Mitigation (general)	The EPA requested that the EIS adopt a formal adaptive management plan. Other commenters expressed concern that the project lacks a suitable restoration plan. Commenters requested that lands be identified to fully mitigate project impacts and that deferred mitigation not be allowed, that the EIS analyze the impacts of the mitigations imposed by the EIR, and that funding assurances and an enforceable schedule for restoration be included.
Agriculture	Individual commenters expressed concerns about impacts the project would have on local agriculture. They requested that the EIS evaluate impacts on local farmers, impacts from loss of grazing, and impacts on soils from solar panels. One commenter also stated that the valley was not farmed because of property owner choice, not because of irrigation inefficiencies or poor water quality.
Visual resources	Commenters expressed concern over impacts on the visual character of the area in general and impacts from light pollution on the night sky specifically.
Climate change	The EPA requested that the EIS evaluate how water reliability might be affected by climate change, how climate change could influence the project, and how impacts from the project might be exacerbated by climate change. The agency also requested that the EIS quantify and disclose potential benefits on climate change from solar energy and quantify greenhouse gas emissions from different types of generating facilities. One organization requested that the EIS address the effects of global climate change on plants, animals, and habitats in the Panoche Valley as part of the future environmental baseline.
Decommissioning	Individual commenters requested more information and commitment on the decommissioning of the proposed project, including setting aside funds for restoration. One commenter expressed the opinion that the facility not be decommissioned after 30 years but that the technology be updated.

Table ES-3
Summary of Scoping Issues

Issue	Summary of Comments by Issue
Impact analysis (general)	The EPA requested that the EIS clearly describe the rationale used to determine whether impacts of an alternative are significant. One organization described elements to be considered when evaluating the intensity of an impact.
Land use and recreation	The EPA requested that the EIS describe the current condition of the land, if it is disturbed, and to what extent the land could be used for other purposes. It also requested that the EIS discuss how the project would support or conflict with the objectives of federal, state, tribal, or local land use plans and policies. One commenter requested that the EIS evaluate impacts on recreationists, particularly bird watchers.
Environmental justice	The EPA requested an evaluation of environmental justice populations within the geographic scope of the project and the potential for disproportionate impacts on these populations. One commenter expressed concern over access to information by the Hispanic community.
Soils and geology	One commenter requested that the EIS analyze impacts from the project on Class I soils. Another commenter expressed concern over soil erosion.
Section 404 permitting process	Two commenters asked that comments provided to the USACE through the Section 404 public noticing process be included and addressed in the EIS.

ES.5.2 Public Review Process

The USACE submitted the *Panoche Valley Solar Facility Draft EIS* to EPA on September 4, 2015. The EPA published the Notice of Availability (NOA) of the Draft EIS in the *Federal Register* on September 11, 2015 (Fed. Reg. Vol. 80, No. 176, p. 54786). Additional noticing of the Draft EIS and public meetings included the following:

- The USACE published a public notice on its website notifying the public of the availability of the Draft EIS, announcing the public meetings, and soliciting comments on the proposed project.
- The USACE mailed a postcard to those on the project mailing list notifying them of the public notice and directing them to the USACE website.
- The USACE emailed the postcard to California, Fresno County, the Panoche Valley Solar Facility project, and Special notification lists directing them to the USACE website.
- The USACE published a notice in the *Hollister Free Lance* on October 2, 2015, informing the public of the availability of the Draft EIS and providing information on the public meetings.

During the public review period, interested parties were invited to comment on the Draft EIS through submission of written and verbal comments. The 45-day public review period for the Draft EIS ran from September 11, 2015 to October 26, 2015.

Two public meetings on the Draft EIS were held in the project area. The first meeting was held on October 6, 2015, at the Veterans Memorial Building in Hollister, California. The second meeting was held on October 7, 2015, at the Panoche Elementary School in Paicines, California. The meetings were conducted in an open house format. Informational posters and a PowerPoint presentation provided information on the proposed project evaluated in the Draft EIS, the NEPA process, and the USACE regulatory program. Representatives from the USACE, the project applicant, and the EIS preparer were available to answer questions. A court reporter was present at the meetings to enter verbal comments into the public record.

Twenty-eight people attended the public meeting on October 6, 2015, and nineteen individuals entered verbal comments into the public record. Fifteen people attended the public meeting on October 7, 2015, and no attendees entered verbal comments into the public record. No tribal, federal or state agency, or organizational representatives attended or provided comments at either meeting.

Comment letters were submitted by the following agencies and organizations; seven individuals also submitted comments:

- US Environmental Protection Agency
- US Department of the Interior, Office of Environmental Policy and Compliance
- US Department of the Interior, Bureau of Land Management, Central Coast Field Office
- California Office of Historic Preservation, Department of Parks and Recreation
- Central Valley Regional Water Quality Control Board
- Aircraft Owners and Pilots Association
- The Nature Conservancy
- Sierra Club, Defenders of Wildlife, and Center for Biological Diversity (joint letter)
- Audubon Society of California

The issues raised in the written comments focused mainly on biological resource issues, while all of the verbal comments supported the project for economic reasons. **Chapter 6** of this Final EIS presents the comment letters,

the transcript of the public meeting, and the USACE's responses to the public comments received on the Draft EIS. **Appendix A** contains copies of the public noticing materials on the Draft EIS.

ES.6 SUMMARY OF ENVIRONMENTAL IMPACTS

Table ES-4~~**Table ES-3**~~ provides a summary of the potential environmental effects that could result from implementing the no action (no build) alternative, the no action (no USACE permit) alternative, and Alternatives A, B, and C. The on-site alternatives evaluated in the EIS incorporate applicant-proposed measures, EIR mitigation measures, and PG&E avoidance and minimization measures to avoid and reduce impacts resulting from construction and operation of the proposed solar facility. These measures have been committed to by the project applicant and are required as conditions of approval as part of the project's approval and CEQA clearance by San Benito County. These measures are detailed in **Tables C-1**, **C-2**, and **C-3**, respectively, in **Appendix C** of the EIS.

Table ES-4
Summary of Environmental Impacts

No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's ~~Proposed Project~~ Preferred Alternative)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
		Aesthetics		
No impacts. The proposed project would not be constructed and no telecommunication upgrades would occur. The existing aesthetic environment of the project site and telecommunication facilities would remain the same.	Less than significant impacts. The major visual change during construction activities would be the removal of vegetation during grading, new perimeter road development, lighting required for night-time construction activities, placement and movement of construction equipment and materials, and varying levels of dust creation during ground-disturbing activities. Grading would reveal the brown layers of soil, which could range from a low to moderate short-term contrast. Measures included as part of the no action (no permit) alternative would require revegetation following grading. Vegetation removal during grading would be a temporary, less than significant direct impact. Surface disturbance on the project site and traffic on unpaved roadways would cause dust to be mobilized in the air. Dust produced on the project site can travel off-site during windy conditions or when occurring near the boundary of the project site. Measures included as part of the no action (no permit) alternative would minimize dust produced on-site. This would result in less than significant direct and indirect impacts during the construction phase. Night sky impacts from lighting would be	Less than significant impacts. Impacts associated with construction of the applicant's proposed project would have the same temporary and short-term direct and indirect less than significant impacts described for the no action (no permit) alternative. Measures included as part of the no action (no permit) alternative to reduce aesthetic impacts would also be part of Alternative A. Under Alternative A, additional grading would occur in the eastern portion of the project site associated with the three drainages considered waters of the U.S.; however, this area would not be in the foreground views. Impacts would be direct and less than significant. Long-term indirect impacts on aesthetics from construction of the applicant's proposed project would be the same as described under the no action (no permit) alternative, though the overall footprint of the solar facility would be reduced by over 350 acres. Impacts	Less than significant impacts. Short-term and long-term direct and indirect impacts under Alternative B would be the same as those described under Alternative A. Measures included as part of the no action (no permit) alternative to reduce aesthetic impacts would also be part of Alternative B. Impacts would be less than significant. Direct and indirect less than significant impacts associated with PG&E primary and secondary telecommunication network upgrades would be the same as described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	Less than significant impacts. Direct visual impacts during construction would be varied and changing based on the type and location of the construction activities. Where grading occurs, removing vegetation would reveal the brown layers of soil, which could range from a low to moderate short-term contrast, depending on the size and location of grading activities and their visibility from surrounding roadways. Such grading would not contrast with the relatively flat landscape and the already disturbed nature of the lands within the CREZ and would be a less than significant direct impact. Use of heavy construction equipment could be visible from Interstate 5, Highway 41, South Lassen Avenue, Avenal Cutoff Road, and West Jayne Avenue/Nevada Avenue moving in the direction of the CREZ. Construction would cause dust to be mobilized in the air. This would create dust plumes around these activities similar to those created by agricultural equipment now used in the area. Because of the temporary nature of these impacts and because these impacts would be similar to those

Table ES-4
Summary of Environmental Impacts

No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's ~~Proposed Project~~ Preferred Alternative)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	direct and less than significant given the limited nighttime activities allowed during construction. Long-term indirect impacts on aesthetics from construction of the solar facility would be less than significant due to the intermittent or low visibility of the solar panels, the short viewing time of solar facility features, the low frequency of use of adjacent roadways, the use of dulled finishes and colors to blend with the landscape, and maintenance of the visual quality of the background views of the Panoche Hills, Tumey Hills, Griswold Hills, and the Coast Range Mountains. Measures included as part of the no action (no permit) alternative would reduce dust generated and the impacts of lighting on aesthetics during operational and maintenance activities. As a result, long-term impacts on aesthetics would be less than significant. New microwave equipment would be collocated on existing towers or new towers would be constructed in already developed areas and would not change the overall characteristic of the landscapes, resulting in less than significant long-term impacts. Cumulative impacts would be less than significant.	would be less than significant due to the intermittent or low visibility of the solar panels, the short viewing time of solar facility features, the low frequency of use of adjacent roadways, the use of dulled finishes and colors to blend with the landscape, and maintenance of the visual quality of the background views of the Panoche Hills, Tumey Hills, Griswold Hills, and the Coast Range Mountains. Impacts from operational and maintenance activities would be the same as described for the no action (no permit) alternative. Impacts would be less than significant. Direct and indirect less than significant impacts associated with PG&E primary and secondary telecommunication network upgrades would be the same as described under the no action (no permit) alternative. Cumulative impacts would be less than significant.		already occurring on surrounding agricultural lands, aesthetic impacts from the creation of dust plumes would be less than significant. Development of a proposed solar facility would create a moderate contrast to the generally matte white agricultural structures that are distributed across the landscape in the CREZ. Overall, indirect impacts would be less than significant due to the topography and visual character of the Westlands CREZ area. Dust plumes from travel on unpaved surfaces and operational lighting would be the primary impacts from operational and maintenance activities. Given the low viewer sensitivity and the more developed nature of the area near the Westlands CREZ, aesthetic impacts would be less than significant. Cumulative impacts would be less than significant.

Table ES-4
Summary of Environmental Impacts

No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's ~~Proposed Project~~ Preferred Alternative)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
		Agricultural Resources		
No impacts. The proposed project would not be constructed and no telecommunication upgrades would occur. Current agricultural uses on the proposed project site would continue.	Less than significant impacts. The no action (no permit) alternative would convert the 2,506-acre project footprint from grazing land to solar development, converting this acreage to a nonagricultural use. Project site lands are not considered prime farmland, unique farmland, or farmland of statewide importance due primarily to the lack of irrigation. Measures included as part of the no action (no permit) alternative would provide funding for 4,563 acres of conservation easement(s) on grazing land, or 285 acres of conservation easement(s) on high quality cropland classified as prime farmland in the San Juan Valley. This would offset the loss of grazing lands in San Benito County. Conservation of the 10,772-acre Valadeao Ranch and 10,890-acre Silver Creek Ranch would further offset the impact of conversion of the project site out of agricultural use. Because San Benito County cancelled the Williamson Act, unique farmland, or farmland of statewide importance, the proposed project would have no direct impact associated with conversion of farmland as defined by these agencies. Measures included as part of the no action (no permit) alternative would ensure a less than significant short-term indirect impact on surrounding cultivated	Less than significant impacts. Direct and indirect impacts on agricultural resources would be ~~the same as~~similar to those described for the no action (no permit) alternative. Alternative A would have fewer acres in development, but the overall level of impact on agricultural resources would be the same as described for the no action (no permit) alternative. The measures identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. Less than significant direct impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	Less than significant impacts. Direct and indirect impacts on agricultural resources would be the same as described for ~~the no action (no permit) alternative~~ Alternative A. The measures identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. Less than significant direct impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	Less than significant long-term impacts. Potentially significant short-term impacts on surrounding agricultural uses. Development of a solar facility would convert cultivated farmlands out of agricultural use. Depending upon the location of the project, it could also occur on lands that are now subject to Williamson Act contracts or Farmland Security Zone contracts. These contracts would need to be cancelled prior to issuance of a conditional use permit. Lands within the CREZ are formally recognized as drainage impaired by the US Bureau of Reclamation and are eligible for conversion to Solar Access Easements for a term no less than 20 years. Therefore, the Westlands CREZ alternative would have a less than significant direct impact on agricultural resources. Construction would have a potentially significant indirect effect on surrounding cultivated agricultural land uses by depositing particulate matter on row crops, altering drainage and flow patterns during site construction, and impeding agricultural-related traffic on area roadways. Measures are

Table ES-4
Summary of Environmental Impacts

No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's ~~Proposed Project~~ Preferred Alternative)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	agricultural land uses during construction. Operational and maintenance activities would not disrupt agricultural uses on surrounding lands, would not produce excessive dust that could travel off-site, and would not cause high levels of traffic. As a result, operational and maintenance activities would have no impacts on agricultural resources. Because telecommunication upgrade activities would occur within PG&E's right-of-way, they would not conflict with any applicable land use plan, policy, or regulation pertaining to agriculture or with the Williamson Act. Therefore, impacts would be less than significant. Cumulative impacts would be less than significant.			recommended to mitigation this impact. However, USACE has no jurisdiction over these mitigation measures. It is uncertain whether these measures would be required as conditions of approval in the conditional use permit process of Fresno or Kings Counties; therefore, the level of impact would remain potentially significant. Operational and maintenance activities would not disrupt agricultural uses on surrounding lands, would not produce excessive dust that could travel off-site, and traffic would be low. As a result, operational and maintenance activities would have no impacts. Cumulative impacts would be less than significant.
		Air Quality		
No new impacts. The proposed project would not be constructed and no telecommunication upgrades would occur. No change in existing air emissions would occur; existing emissions from agricultural-related	Less than significant impacts. With incorporation of measures included as part of the no action (no permit) alternative to minimize fugitive dust and equipment exhaust-related emissions, construction-related emissions would not exceed Monterey Bay Unified APCD construction thresholds. Impacts would be direct and less than significant. Construction would produce fugitive dust that could affect surrounding sensitive	Less than significant impacts. Direct and indirect impacts on air quality under Alternative A would be the same as described for the no action (no permit) alternative. The measures identified as part of the no action (no permit) alternative to minimize air quality impacts are also included as part of this alternative. As described for the	Less than significant impacts. Direct and indirect impacts on air quality under Alternative B would be the same as described for the no action (no permit) alternative. The measures identified as part of the no action	Less than significant impacts. The Westlands CREZ is in an extreme nonattainment area for the federal ozone standard and a moderate nonattainment area for the federal $PM_{2.5}$ standard. Comparing the emissions from the no action (no permit) alternative to the San Joaquin Valley APCD construction emissions thresholds and the Clean Air Act conformity

Table ES-4
Summary of Environmental Impacts

No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's ~~Proposed Project~~ Preferred Alternative)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
use of the project site would continue. Potential impacts from offsetting fossil-fuel power generation with renewable energy generation would not be realized.	land uses. The closest residence is approximately 1,700 feet southwest of the southwest corner of the project footprint; all other residences are at least 0.5 mile from the project footprint boundary. The Panoche Elementary School is over 1 mile south of the project footprint boundary. Because measures included as part of the no action (no permit) alternative require that the applicant's contractor designate a person or persons to monitor the fugitive dust emissions and enhance the implementation of the measures as necessary to minimize dust complaints, reduce visible emissions below 20 percent opacity, and prevent the transport of dust off-site, indirect impacts would be less than significant. Operational-related project emissions would not exceed Monterey Bay Unified APCD operational thresholds or Prevention of Significant Deterioration thresholds. The alternative would be consistent with applicable plans by implementing measures to reduce dust and minimize exhaust-related emissions. Overall impacts on air quality from operational and maintenance activities would be less than significant. Production of renewable electricity could indirectly benefit regional air quality by offsetting criteria pollutant and toxic emissions that would otherwise be emitted from fossil fuel-fired power plants.	no action (no permit) alternative, direct and indirect impacts would be less than significant. Less than significant direct impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	(no permit) alternative to minimize air quality impacts are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. Less than significant direct impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	threshold for NOx, a similar 247 MW project within the CREZ would exceed the San Joaquin Valley APCD construction emissions threshold and the Clean Air Act conformity threshold for NOx. This would be a direct significant impact on air quality. Enhanced mitigation measures would be required to mitigate NOx emissions and reduce air quality impacts to less than significant levels. The USACE does not have the authority to require or implement these mitigation measures; however, it is likely that these measures would be required and implemented through the Fresno County or Kings County conditional use permitting process for a project constructed within the Westlands CREZ in order to bring project emissions to below the required CEQA threshold established by the San Joaquin Valley APCD. The nature of operational air quality impacts under the Westlands CREZ alternative are similar to those discussed under no action (no permit) alternative. Impacts would be less than significant. Potentially significant short-term cumulative impact on air quality. Individual project impacts, however,

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No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's ~~Proposed Project~~ Preferred Alternative)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	Emissions associated with PG&E telecommunication upgrade actions would result in temporary, short-term, and localized emissions associated with primary and secondary upgrade activities over the 16-month construction period. Emissions would not exceed applicable Monterey Bay Unified APCD or San Joaquin Valley APCD significance thresholds or Clean Air Act conformity thresholds for emission-generating activities in Fresno County. Impacts would be less than significant. Cumulative impacts would be less than significant.			would be reduced by implementing mitigation measures required through the Kings County permitting processes. Long-term impacts on air quality would be incrementally and cumulatively less than significant because prior sources of emissions related to cultivated agricultural practices would be replaced with a more passive use.
		Climate Change		
No new impacts. The proposed project would not be constructed and no telecommunication upgrades would occur. No changes in greenhouse gas emissions or carbon sequestration associated with project site would occur.	Less than significant impacts. Construction of the no action (no permit) alternative would result in a short-term increase in greenhouse gas emissions from vehicle and equipment activity. Construction activities would emit an estimated 22,390 metric tons of carbon dioxide equivalents ($MTCO_{2e}$), which is comparable to 0.005 percent of California's annual greenhouse gas emissions in 2012. In addition, this level is below CEQ's recommended threshold of 25,000 metric tons of carbon dioxide equivalent emissions annually for quantifying greenhouse gas emissions in a NEPA analysis. The no action (no permit) alternative would not be a locally,	Less than significant impacts. Impacts under Alternative A would be ~~the same as~~similar to those described under the no action (no permit) alternative. An additional 442 acres of On-Site Conservation Lands and 1,000 acres of Additional Conservation Lands would be placed in conservation easements in perpetuity, preserving existing vegetation on 1,442 more acres than under the no action (no permit) alternative. As described for the no action (no permit) alternative, impacts would be	Less than significant impacts. Impacts under Alternative B would be the same as those described under the no action (no permit) alternative. As described for the no action (no permit) alternative, impacts would be less than significant. Less than significant direct impacts associated with PG&E	Less than significant impacts. Greenhouse gas emissions associated with constructing a 247 MW solar facility would be similar to those described under the no action (no permit) alternative. The level of greenhouse gases produced would not be a locally, regionally, or nationally significant source of greenhouse gases, and impacts would be direct and less than significant. Depending on the site selected, the Westlands CREZ alternative could result in the removal of vegetation. However, much of the land in the

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No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's ~~Proposed Project~~ Preferred Alternative)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	regionally, or nationally significant source of greenhouse gases. Impacts would be less than significant and direct impact. Removal of vegetation would remove a carbon sink; this would be a less than significant impact because the carbon uptake of existing soils and vegetation is low and would be offset with preservation of conservation lands in perpetuity. Operational and maintenance activities would generate about 480 $MTCO_{2e}$ per year but overall would save approximately 155,460 $MTCO_2e$ per year, compared to a fossil fuel-fired power plant. The no action (no permit) alternative would therefore help meet California's Renewable Portfolio Standard and would contribute to the implementation of the California Global Warming Solutions Act. PG&E telecommunication upgrades would produce minor amounts of greenhouse gases from vehicles, helicopters, and construction equipment. The level of greenhouse gases produced would be less than for construction of the solar facility and would not be a locally, regionally, or nationally significant source of greenhouse gases. These upgrades would have a less than significant impact. Cumulative impacts would be less than significant.	less than significant. Less than significant direct impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	CREZ has rotational crops that do not provide a high level of carbon sequestration. This would be a direct and less than significant impact. Impacts from operation of a proposed solar facility are the same as those described for the no action (no permit) alternative. Cumulative impacts would be less than significant.

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No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's ~~Proposed Project~~ Preferred Alternative)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
		Biological Resources		
Waters of the U.S., Including Wetlands				
No new impacts. No new impacts on waters of the U.S. would occur because no project would be built. Current impacts on waters of the U.S. from land use practices, such as ranching and farming, would continue.	Less than significant indirect impacts. Under the no action (no permit) alternative, the project would be constructed without placing fill into waters of the U.S., avoiding the need for a Department of the Army permit. The no action (no permit) alternative would have no direct impacts on waters of the U.S. Because there are no jurisdictional wetlands on the project site, the no action (no permit) alternative would have no impact on jurisdictional wetlands. Waters of the U.S. could be indirectly impacted under the no action (no permit) alternative. Indirect impacts can include changes in hydrology that would affect the normal function of a water resource, increase in suspended sediments and sediment deposition, discharge of pollutants, other reductions in water quality, or introduction or spread of noxious weeds or nonnative, invasive plants. Measures included as part of the no action (no permit) alternative would minimize indirect impacts through implementing best management practices to minimize erosion, sedimentation, and introduction of hazardous materials into waters of the U.S. In addition, construction activities would remain within the designated work areas and	Less than significant impacts. Under Alternative A, the proposed project would place fill into 0.121~~0.122~~ acre of waters of the U.S. The applicant has avoided impacts on all other waters of the U.S. With implementation of avoidance, minimization, and compensation measures, direct and indirect impacts on waters of the U.S. would be less than significant. Less than significant direct and indirect impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as described for the no action (no permit) alternative for construction and operations and maintenance. Cumulative impacts would be less than significant.	Less than significant impacts. Under Alternative B, the proposed project would place fill into 0.122~~0.124~~ acre of waters of the U.S. The applicant has avoided impacts on all other waters of the U.S. With implementation of avoidance, minimization, and compensation measures, direct and indirect impacts on waters of the U.S. would be less than significant. Less than significant direct and indirect impacts associated with PG&E telecommunication network upgrades are the same as described for the no action (no permit) alternative for construction and operations and	Less than significant impacts. A jurisdictional delineation has not been performed for the lands within the Westlands CREZ, nor has a specific project location been selected. Given the number of drainages and canals in the eastern half of the CREZ, Alternative C would have the potential to impact jurisdictional waters of the U.S. In order to verify that structures or fill would not have a significant impact on waters of the U.S., a jurisdictional delineation would be required. Based on the results of the delineation, measures would be required to avoid, minimize, or compensate for impacts. Impacts would be less than significant. Cumulative impacts would be less than significant.

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No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's ~~Proposed Project~~ Preferred Alternative)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	outside of buffers established around avoided waters of the U.S., temporarily disturbed areas within work areas would be revegetated, and a Wetland Mitigation and Monitoring Plan would compensate for unavoidable impacts. Indirect impacts would be less than significant. There would be no direct permanent or temporary disturbance to potential waters of the U.S. and other aquatic resources resulting from construction of PG&E telecommunication upgrades. Cumulative impacts would be less than significant.		maintenance. Cumulative impacts would be less than significant.	
Vegetation				
No new impacts. No new impacts on vegetation and sensitive habitats would occur because no project would be built. Current impacts on vegetation from land use practices, such as ranching and farming, would continue.	Less than significant impacts. Construction would result in permanent and temporary disturbance within the project footprint. These impacts include permanent or temporary disturbance of 1,796 acres of introduced annual grasslands, and temporary disturbance of 0.2 acre of waters of the State (vernal pool habitat). Measures included as part of the no action (no permit) alternative would minimize impacts through implementation of weed prevention and control measures, which would reduce any likelihood for the invasion or spread of nonnative, invasive, or noxious weeds to a less than significant level.	Less than significant impacts. Impacts on vegetation and sensitive habitats under Alternative A would be similar to those described under the no action (no permit) alternative. However, the total acres within the project footprint would be reduced by approximately 350 acres. An additional 442 acres of On-site Conservation Lands and 1,000 acres of Additional Conservation Lands would also be preserved in perpetuity, for a total conservation of 25,618 acres of lands. In addition,	Less than significant impacts. Impacts on vegetation and sensitive habitats under Alternative B are similar to those described for Alternative A. Construction of ~~the~~ a multi-span bridge~~s~~ would cause additional short-term disturbance to the streambed and stream bank and additional short- and long-term upland habitat impacts,	Less than significant impacts. Potential permanent and temporary disturbance could result from the construction of solar project features in the Westlands CREZ. These features would vary depending on the location of the project but would likely be similar to those project features described for the no action (no permit) alternative. In addition, bridge crossings over irrigation canals and ditches within the Westlands CREZ would likely be necessary. Lands in the Westland CREZ may be especially susceptible to invasion or spread of nonnative invasive or

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	Several ephemeral pools contain confirmed listed vernal pool fairy shrimp, and these features would be protected by construction buffers. Measures included as part of the no action (no permit) alternative would include implementing stormwater pollution prevention and erosion control measures, which would reduce any effects of soil disturbance causing the loss of soil nutrients and topsoil through erosion, and fugitive dust abatement measures to reduce dust during construction, which would ensure that effects on plant photosynthesis and respiration that could result in lower plant vigor and growth rate and susceptibility to disease, The PV arrays would alter the light and hydrological regimes where they are installed. Shading and the associated decrease in soil temperature and increase in available soil moisture on the project site may alter the vegetation composition growing in these areas. Approximately 24,176 acres of vegetation communities would be preserved in perpetuity. While short-term impacts to native and nonnative vegetation could occur from habitat enhancement actions on conservation lands, vegetation would benefit in the long term due to the actions. Overall, long-term impacts on vegetation on the project site and conservation lands would be indirect and	installation of a single-span bridge at the Las Aguilas Creek crossing under Alternative A would result in less disturbance than installation of the free-span bridge under the no action (no permit) alternative. The measures identified as part of the no action (no permit) alternative to minimize impacts on vegetation and sensitive habitats are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts from construction and operational and maintenance activities would be less than significant. Approximately 25,618 acres of vegetation communities would be preserved in perpetuity. Less than significant direct and indirect impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as described for the no action (no permit) alternative for construction and operations and maintenance. Cumulative impacts would be less than significant.	as more fill would be needed to accommodate the bridge specifications. These additional impacts are not anticipated to cause substantially higher impacts to vegetation or sensitive habitats, as the long-term removal would affect a relatively small area. The measures identified as part of the no action (no permit) alternative to minimize impacts on vegetation and sensitive habitats are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts from construction and operational and maintenance activities would be less than significant. Less than significant direct and indirect impacts associated with PG&E primary	noxious weeds, due to the lack of native vegetation and disturbed soils. Additionally, semi-disturbed areas like field edges, dirt access roads, and irrigation canal berms likely harbor existing nonnative invasive or noxious weeds and associated seedbanks. Therefore, any soil disturbance in these areas may facilitate spread of these weedy species. Mitigation measures recommended for the no action (no permit) alternative would minimize direct and indirect impacts on vegetation to less than significant levels. The USACE does not have the authority to implement any of the mitigation measures with the exception of those directly related to impacts to waters of the U.S., water quality certification, or biological opinion. However, the recommended mitigations are standard mitigations that would likely be implemented either through the conditional use permit or other permit required to construct a solar project. These mitigations could be refined by Kings and Fresno Counties, CDFW, and USFWS, which would likely be issued on regulatory approval. Cumulative impacts would be less than significant.

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	less than significant. The nature and type of effects from operational and maintenance activities would be similar to those described for construction. Because measures to reduce impacts would be included as part of the no action (no permit) alternative, impacts would be less than significant. Permanent disturbance resulting from construction of PG&E primary telecommunication upgrades would be limited. Preparation of the temporary pull/splice sites, helicopter landing zones, and work areas for the new permanent wood poles would require some minor ground disturbance, including vegetation trimming, recontouring, and lightly compacting the ground. Because PG&E has proposed as part of the no action (no permit) alternative to implement BMPs and revegetation measures to reduce any temporary effects on soil and vegetation, direct and indirect impacts would be less than significant. Cumulative impacts would be less than significant.		and secondary telecommunication network upgrades are the same as described for the no action (no permit) alternative for construction and operations and maintenance. Cumulative impacts would be less than significant.	

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Wildlife				
No new impacts. No new impacts on wildlife would occur because no project would be built. Effects on wildlife associated with ongoing agricultural practices would continue.	Less than significant impacts. Construction, heavy equipment, and vehicle use on the project site could cause direct impacts, including mortality or injury to a variety of wildlife species, especially small animals that have subsurface burrows or ground- or shrub-nesting birds. Measures included as part of the no action (no permit) alternative would minimize impacts through environmental awareness training, keeping traffic and equipment within pre-designated work areas and out of wildlife habitat where strikes would be more likely to occur, establishing speed limits for construction traffic to reduce chances for vehicle strikes, establishing construction hours based on sunrise and sunset, and equipping holes and trenches left overnight with wildlife escape ramps. Short-term, direct effects from visual and noise disturbance could result from construction activities, human presence, vehicles in the project site, and night lighting. Measures included as part of the no action (no permit) alternative would minimize impacts through pre-construction surveys for breeding birds and raptors to avoid active nests, ensuring construction lighting would be downlighted, would not cause excessive glare, and would not illuminate the night sky, and reducing noise and vibration	Less than significant impacts. Impacts from construction would be similar to those described for the no action (no permit) alternative. However, the total acres within the project footprint would be reduced by approximately 350 acres. An additional 442 acres of On-site Conservation Lands and 1,000 acres of Additional Conservation Lands would also be preserved in perpetuity, for a total conservation of 25,618 acres of land. Installation of a single-span bridge~~s~~ under Alternative A would generally result in less upland habitat disturbance than installation of the free-span bridge~~s~~ under the no action (no permit) alternative. Additionally, the single-span bridge~~s~~ would not provide potential predator perches as the free-span bridge~~s~~ would. Impacts from operational and maintenance activities would be as described for the no action (no permit) alternative. The measures identified as part of the no action (no permit)	Less than significant impacts. Impacts from construction would be similar to those described for Alternative A. In addition, construction of bridge footings within the channel would result in disturbance to streambed and stream bank habitat during construction. This would result in a small increase in disturbance to wildlife movement corridors relative to the construction of the single-span bridge~~s~~ described under Alternative A. Impacts from construction on small and large mammals, reptiles and amphibians, and ground-nesting birds would be the same as Alternative A.	Less than significant impacts. Although the Westlands CREZ does not contain a high degree of species diversity and richness, wildlife present in the area could still experience impacts from development of a solar facility. Impacts from construction would be similar to those described under the no action (no permit) alternative. Construction activities, heavy equipment, and vehicle use on the site during construction could cause mortality or injury to wildlife, especially small mammals or ground-nesting birds. Construction could also cause short-term visual and noise disturbance from construction activities, human presence, vehicles on site, and night lighting. Visual and noise disturbances could cause birds, bats, or reptiles to alter their foraging, migration, wintering, and breeding behaviors, and avoid suitable habitat within or near the project area. Impacts from operational and maintenance activities would be similar to those described for the no action (no permit) alternative.

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	associated with PV panel installation. Habitat loss, fragmentation, and degradation could displace wildlife from the project site over the long term. Preservation of conservation lands would ensure that high quality habitat, including wildlife movement corridors, for common wildlife species are preserved. The nature and type of effects on wildlife from operational and maintenance activities under the no action (no permit) alternative could include impacts to wildlife species, populations, and habitats including direct mortality, visual and noise disturbance, temporary loss of habitat, and effects from lighting. Because applicant-proposed and San Benito County-approved measures have been incorporated into the no action (no permit) alternative, and because impacts would be short-term and localized, impacts would be less than significant. PG&E telecommunication upgrades construction activities would temporarily alter the existing condition of only 2.6 acres within the existing PG&E right-of-way. With implementation of measures included as part of the no action (no permit) alternative, direct and indirect impacts would be less than significant. Cumulative impacts would be less than significant.	alternative to minimize impacts on wildlife are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts from construction and operational and maintenance activities would be less than significant. Less than significant direct and indirect impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as described for the no action (no permit) alternative for construction and operations and maintenance. Cumulative impacts would be less than significant.	Impacts from operational and maintenance activities would be as described for Alternative A. The applicant-proposed measures and San Benito County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts from construction and from operational and maintenance activities would be less than significant. Less than significant direct and indirect impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as described for the no action (no permit) alternative for	While the Westlands CREZ site does not contain a high degree of wildlife diversity or high-quality habitat, mitigation measures are recommended to lessen impacts on wildlife. The USACE does not have the authority to implement mitigation measures with the exception of those directly related to a permitting action, water quality certification, or biological opinion. However, the recommended mitigations are standard mitigations that would likely be implemented either through the conditional use permit or other permit required to construct a solar project. These mitigations could be refined by Kings and Fresno Counties, CDFW, and USFWS, which would likely be issued on regulatory approval. These conditions would further reduce impacts from construction. With implementation of these mitigation measures, impacts would be less than significant. Cumulative impacts would be less than significant.

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			construction and operations and maintenance. Cumulative impacts would be less than significant.	
Special Status Species				
No new impacts. No new impacts on special status species would occur because no project would be built. Effects on special status species associated with ongoing agricultural practices would continue.	Less than significant impacts. Construction would affect four federally protected species: San Joaquin kit fox, giant kangaroo rat, blunt-nosed leopard lizard, and California tiger salamander. Impacts would include displacing San Joaquin kit fox from portions of the project site where they are known to be present, changing the daily movement and hunting patterns of individual kit fox, removing denning sites, and potential injury or mortality to individual kit fox. Impacts on giant kangaroo rat include injury or mortality, habitat loss and modification, and potential changes in the composition and distribution of burrows and precincts. Impacts on blunt-nosed leopard lizard and California tiger salamander include injury or mortality to individuals, habitat loss and modification, and potential changes in the composition and distribution of mammal burrows. With implementation of measures included as part of the no action (no permit) alternative and preservation	Less than significant impacts. Under Alternative A, impacts on special status species would be similar to those described under the no action (no permit) alternative. However, the project footprint would be reduced by approximately 350 acres. An additional 442 acres of On-site Conservation Lands and 1,000 acres of Additional Conservation Lands would also be preserved in perpetuity, for a total conservation of 25,618 acres of land. With construction within 0.121~~0.122~~ acre of waters of the U.S., there would be a likelihood of increased impacts on San Joaquin kit fox, blunt-nosed leopard lizard, special status plant species, special status reptiles and amphibians, and special status small mammals. However, there	Less than significant impacts. Impacts from construction of Alternative B would be similar to those described for Alternative A. With construction of the multi-span bridge~~s~~, there would be a likelihood of increased impacts on San Joaquin kit fox, blunt-nosed leopard lizard, special status plant species, special status reptiles and amphibians, and special status small mammals compared to Alternative A. The level of impact on each of these species with measures proposed as part of	Less than significant impacts. Given the intensive farming and prior site disturbance, it is unlikely that special status invertebrates occur in the Westlands CREZ. As a result, there would be no impact on special status invertebrates under this alternative. No special status plant species have been observed to date in the Westlands CREZ; however, no field surveys have been completed. If special status plant species are present, construction, operations, and maintenance could cause direct and indirect short-term and long-term effects on special status plant species. While no special status reptiles and amphibians are documented within the Westlands CREZ, there is potential suitable habitat for several species, including blunt-nosed leopard lizard. Impacts on special

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	of the conservation lands, impacts on San Joaquin kit fox, giant kangaroo rat, blunt-nosed leopard lizard, and California tiger salamander would be less than significant. Surveys detected the presence of three California Native Plant Society-ranked special status plant species, recurved larkspur, California groundsel and serpentine leptosiphon. Construction activities would result in direct impacts from removal of individuals or populations and indirect impacts from dust cover that inhibits photosynthesis. With the implementation of measures included as part of the no action (no permit) alternative and preservation of the conservation lands, impacts on special status plant species from construction would be less than significant. Construction would also impact other special status invertebrates, reptiles, and amphibians, bird species, bat species, and small mammals through mortality or habitat removal. With implementation of measures included as part of the no action (no permit) alternative, impacts on special status invertebrates, reptiles, and amphibians, birds, bats, and small mammal species would be less than significant. The no action (no permit) alternative would permanently conserve 24,176 acres of habitat within the Panoche Valley. With the implementation of measures included	would be fewer impacts to upland habitats caused by the single-span bridge~~s~~ compared to the free-span bridge~~s~~ in the no action (no permit) alternative. The level of impact on each of these species with measures proposed as part of Alternative A would be the same as described for the no action (no permit) alternative. The measures identified as part of the no action (no permit) alternative to minimize impacts on special status species and their habitats are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts from construction and operational and maintenance activities would be less than significant for all species. In addition, conditions developed by USFWS in its Biological Opinion and by CDFW in its incidental take permit for the applicant's preferred alternative would further reduce impacts on special status species. Less than significant direct and indirect impacts associated with PG&E primary and secondary	Alternative B would be the same as described for the no action (no permit) alternative. The measures identified as part of the no action (no permit) alternative to minimize impacts on special status species and their habitats are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts from construction and operational and maintenance activities would be less than significant for all species. Less than significant direct and indirect impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as described for the no action (no permit) alternative for	status reptiles and amphibians, if present, could be potentially significant. One special status bird species, burrowing owl, has been observed to date in the Westlands CREZ; however, comprehensive field surveys have not been completed. Potential direct and indirect short-term and long-term effects on special status bird species could result from construction, operations, and maintenance. Impacts could be potentially significant. While no special status mammals have been documented in the Westlands CREZ, there is potential suitable habitat for the San Joaquin kit fox and other special status mammal species. Potential direct and indirect short-term and long-term effects on special status mammal species could result from construction, operations, and maintenance and be potentially significant. Mitigation measures have been recommended to reduce potential impacts on special status species. The USACE does not have the authority to implement mitigation measures with the exception of

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	as part of the no action (no permit) alternative and preservation of these conservation lands, impacts to special status species would be less than significant, individually and cumulatively. The nature and type of impacts from operational and maintenance activities would be similar to those described for construction. However, there would be fewer impacts during operational and maintenance activities due to the reduced level of human presence and surface-disturbing activities on-site. With the implementation of measures included as part of the no action (no permit) alternative, impacts from operational and maintenance activities would be less than significant levels. Cumulative impacts would be less than significant.	telecommunication network upgrades are the same as described for the no action (no permit) alternative for construction and operations and maintenance. Cumulative impacts would be less than significant.	construction and operations and maintenance. Cumulative impacts would be less than significant.	those directly related to a permitting action, water quality certification, or biological opinion proposed for Alternative C. However, recommended mitigations are standard mitigations that would likely be implemented either through the conditional use permit or other permit required to construct a solar project. With the implementation of these measures, impacts would be less than significant on all special status species discussed. Cumulative impacts would be less than significant.
		Cultural Resources and Tribal Consultation		
No new impacts. The proposed project would not be constructed and no telecommunication upgrades would occur. Existing land uses, including livestock grazing, recreational actions,	Less than significant impacts. Under the no action (no permit) alternative, the resources within the construction footprint would be affected by construction. Because the five archaeological or historical resources and 19 isolates identified are recommended as ineligible for listing on the National Register of Historic Places, construction would not constitute an adverse effect	Less than significant impacts. The impacts anticipated under Alternative A would be the same as those described for the no action (no permit) alternative, except that Alternative A would include potential construction within or along waters of the U.S. There is a potential for buried cultural	Less than significant impacts. The impacts anticipated under Alternative B are the same as those described for Alternative A. The measures identified as part of the no action	Potentially significant impacts. No Class I or Class III cultural surveys were performed for the Westlands CREZ as part of this EIS. Records indicate that 90 recorded cultural resource sites have been identified in Kings County, mostly in the upper three feet of the subsurface (Kings County 2002).

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No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's ~~Proposed Project~~ Preferred Alternative)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
and population growth and community development, at the project site and on surrounding mitigation lands would continue. The impacts associated with each of these activities would continue and would possibly result in damage or destruction of eligible cultural resources through surface-disturbing activities, artifact collection, and vandalism.	under the National Historic Preservation Act (NHPA) or a significant effect under NEPA. ~~The USACE will seek concurrence with this finding through the Section 106 consultation process.~~ The USACE initiated consultation with the California Historic Preservation Office on September 16, 2015; the SHPO responded on October 12, 2015, noting concurrence with the Corps' eligibility determinations and the finding that no historic properties would be affected by the undertaking. The possibility of encountering undiscovered resources exists under the no action (no permit) alternative, which could result in inadvertent artifact destruction or damage or the loss of scientific context. Under the measures included as part of the no action (no permit) alternative a professional archaeologist will conduct on-site monitoring during ground-disturbing activities, and a Native American monitor will be on-site for work in locations sensitive for Native American archaeological deposits and human remains. Work will cease immediately if archeological resources or human remains are discovered, and the applicant will follow protocols for evaluating and treating these resources or remains. Direct and indirect effects on cultural resources would be less than significant and would not constitute an adverse effect under the NHPA or a significant effect	resources or human remains in the central portion of the proposed project site. Measures pertaining to undiscovered resources described for the no action (no permit) alternative are also part of Alternative A. Measures to minimize the potential for adverse effects on undiscovered cultural artifacts or human remains during construction, if encountered, would thus be the same as described under the no action (no permit) alternative. Impacts under Alternative A would not result in an adverse effect under the NHPA or a significant impact under NEPA for the reasons outline under the no action (no permit) alternative. Impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	(no permit) alternative are also included as part of this alternative. Measures to minimize the potential for adverse effects on undiscovered cultural artifacts or human remains during construction, if encountered, would thus be the same as described under the no action (no permit) alternative. Impacts under Alternative B would not result in an adverse effect under the NHPA or a significant impact under NEPA. Impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	Because of the active agriculture production throughout the valley floor portion of Kings County, including the Westlands CREZ, it is likely that agricultural activities have disturbed most archaeological resources. Should new sites be identified at a later time, the nature and type of impacts under this alternative would be the same as those described under the no action (no permit) alternative. Mitigation measures are recommended to avoid or minimize potential adverse effects from development of a 247 MW solar facility in the Westlands CREZ. The USACE would not have the authority to apply the cultural resource mitigation measures at the Westlands CREZ unless a Department of the Army permit would be required. If the USACE did have the authority, standard Section 106 processes and procedures would be followed (including requirements for a cultural resources survey report, mitigation of any adverse effects, and SHPO consultation) and the USACE may require additional mitigation measures such as avoidance of eligible resources and development of a Memorandum of Agreement to mitigate identified adverse effects.

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	under NEPA. The no action (no permit) alternative would have indirect impacts on the historic landscape setting, altering the landscape by imposing modern industrial features in the rural viewshed. As the Panoche Valley has not been recommended or identified as rural historic landscape, and many of its component parts lack integrity, the alterations in the landscape setting would not result in an adverse effect under the NHPA or a significant impact under NEPA. Proposed project operations would not encounter unanticipated resources due to the lack of surface-disturbing actions. However, if such discoveries were made, the measures included as part of the no action (no permit) alternative would reduce the potential for adversely affecting previously undiscovered cultural artifacts or human remains. With implementation of these measures, operational-related impacts would be less than significant and would not constitute an adverse effect under the NHPA or a significant effect under NEPA. All identified cultural resources near telecommunication upgrade sites would be outside of the PG&E work areas or would be avoided. Therefore, there would be no direct effects on any of the			Proposed project operations would not be likely to encounter unanticipated resources due to the lack of surface-disturbing actions. However, if such discoveries were made, the measures described under construction are recommended to reduce the potential for adversely affecting previously undiscovered cultural artifacts or human remains. As described under construction, the USACE would not have the authority to apply the cultural resource mitigation measures at the Westlands CREZ unless a Department of the Army permit would be required. Cumulative impacts would be less than significant.

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No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's ~~Proposed Project~~ Preferred Alternative)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	identified cultural sites. Because no work would occur within 100 feet of the one unevaluated resource, there would be no indirect effects on this resource. Cumulative impacts would be less than significant.			
		Geology and Soils		
No new impacts. The proposed project would not be constructed and no telecommunication upgrades would occur. Ongoing impacts on soils and erosion would continue from agricultural use of the project site.	Less than significant impacts. Construction of the solar facility would result in the direct surface disturbance of 1,796 acres of soils that are at least slightly susceptible to wind erosion. Measures included as part of the no action (no permit) alternative require the applicant to control fugitive dust emissions to the extent possible, including suspending grading during high wind conditions. In addition, areas of temporary disturbance would be restored to their preconstruction state or better, in accordance with the Habitat Restoration and Revegetation Plan. This would reduce the potential for erosion in these areas once the vegetation becomes established. Because these measures have been incorporated into the no action (no permit) alternative to minimize erosion, direct and indirect impacts on soils would be less than significant. Geotechnical investigations indicate the presence of soils that are potentially corrosive to steel and concrete and soils	Less than significant impacts. Alternative A would have similar geology and soils impacts as the no action (no permit) alternative. The measures identified as part of the no action (no permit) alternative are also included as part of this alternative. Under Alternative A there would be a similar amount of disturbance. Because the overall level of permanent and temporary disturbance is not substantially different under Alternative A, impacts would be similar to those described under the no action (no permit) alternative and would be less than significant. Impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action	Less than significant impacts. Direct and indirect impacts on geology and soils under Alternative B would be the same as described above for the no action (no permit) alternative. The applicant-proposed measures and County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant.	Less than significant impacts. Permanent and temporary disturbance would result from the construction of solar project features within the Westlands CREZ. Impact levels and appropriate mitigation measures would vary, depending on the location of the project within the Westlands CREZ but would likely be similar in type to those described under the no action (no permit) alternative. NRCS data indicate soils identified as highly corrosive to steel and concrete, and soils that may be expansive. The area is susceptible to moderate to strong ground shaking due to the proximity of the San Andres and Oritgas fault zones. No faults cross through the Westlands CREZ, so the area is not at risk for fault rupture. The Westland CREZ is a gently sloping to flat landscape with

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No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's ~~Proposed Project~~ Preferred Alternative)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	with shrink/swell potential or expansive soils, which can weaken support structures for the solar arrays and building foundations. Measures have been included as part of the no action (no permit) alternative would prevent the weakening of structures. Soils identified as expansive would be over-excavated if directed by the geotechnical report. PV panels would be installed on direct-driven, corrosion-resistant, galvanized steel support structures and may be placed in holes and backfilled with concrete to reduce corrosion potential. Impacts would be direct and less than significant. No known active faults cross the project site, indicating that there is a low potential for damage to the structures from fault rupture. Adherence to the California Building Code design requirements, standard geotechnical engineering practices, and seismic building code requirements would reduce the potential for major damage to structures during ground shaking, resulting in a less than significant impact. Seismically induced slope failures and landslides are not expected due to the flat and gently sloping topography. There would be no ground-disturbing activities under operations and thus no direct impacts associated with erosion. The perimeter road and driveways would be graveled and interstitial space between	(no permit) alternative. Cumulative impacts would be less than significant.	Impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	deposits of clay, silt, sand, and gravel, indicating that the area is not a risk for landslides, but may be at risk for liquefaction. BMPs and mitigation measures are recommended to reduce potential impacts on soils and geologic resources and ensure that project features are designed and constructed in compliance with California Building Codes and in consideration of site conditions. The USACE does not have the authority to require or implement such measures at the Westlands CREZ; however, similar measures would be required if necessary for specific site conditions as part of the process to obtain the necessary building and grading permits from Fresno or Kings Counties. Operational and maintenance impacts would be the same as those described for the no action (no permit) alternative and would thus be less than significant. Cumulative impacts would be less than significant.

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	the arrays would be vegetated, limiting soil erosion associated with on-site travel. Adherence to speed limits would further limit erosion from on-site travel. Therefore, erosion impacts associated with operational and maintenance activities would be less than significant. Temporary disturbance along the Moss Landing-Panoche transmission line would disturb soils, resulting in soil erosion. This would be a less than significant direct impact, as the terrain is flat and PG&E would implement avoidance and minimization measures to reduce dust as part of the no action (no permit) alternative. Cumulative impacts would be less than significant.			
		Hydrology and Water Quality		
No new impacts. Existing land uses at the proposed project site and on surrounding mitigation lands would continue. No telecommunication upgrades would occur. There would be no change in water quality or existing water uses,	Less than significant impacts. Indirect impacts on hydrology and water quality may occur during construction and following construction. Because no waters of the U.S. would be directly filled under the no action (no permit) alternative, there would be no direct impacts. During construction, disturbed ground would be susceptible to wind and water erosion, which can transport soil to a water body. This can contaminate water	Less than significant impacts. Impacts under Alternative A would be similar in nature to those described under the no action (no permit) alternative for water quality. However, Alternative A would result in direct impacts on water quality as a result of the discharge of fill material into waters of the U.S. These impacts would be similar ~~in type and magnitude~~ to the indirect impacts on water	Less than significant impacts. Impacts on water quality, water supply, and flooding and drainage would similar to those described under Alternative A, except that Alternative B would have direct impacts on 0.122~~0.124~~ acre instead of 0.121~~0.122~~	Potentially significant impacts. Construction would result in impacts on water quality that are similar to those discussed under construction for the no action (no permit) alternative. The same federal and state regulatory requirements to protect water quality discussed for the no action (no permit) alternative would also apply to the Westlands CREZ alternative. This includes preparing an SWPPP and HMBP and obtaining a state water quality

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and there would be no change in flooding or drainage patterns.	with sediment or silt. Altering drainage patterns can channel stormwater runoff toward soils or terrains that are highly erodible, resulting in surface water runoff transporting soil to a water body. These ground disturbances can indirectly contaminate water quality by causing sedimentation and siltation in a water body. The no action (no permit) requires and must follow the provisions of the NPDES permit, SWPPP, hazardous materials business plan (HMBP), and state water quality certification. The various regulatory requirements and measures included as part of the no action (no permit) alternative would minimize the potential for changing water quality and would result in less than significant impacts on surface water and groundwater quality. The no action (no permit) alternative would use groundwater for storage ponds, mass grading and excavation, and dust control during construction. Total water use for these purposes would be 125,400,000 gallons. Because impacts to groundwater supply would be temporary and mitigation measures are incorporated into the no action (no permit) alternative, the impacts on water supply would be less than significant. The no action (no permit) alternative would create temporary construction areas and permanent structures, resulting	quality described under the no action (no permit) alternative. In total, Alternative A would place fill in 0.121~~0.122~~ acre of waters of the U.S. Regulatory requirements and measures included to reduce impacts would be the same as described under the no action (no permit) alternative. Direct and indirect impacts would be less than significant. Impacts under Alternative A would be the same as those described under the no action (no permit) alternative for water supply. The measures identified as part of the no action (no permit) alternative are also included as part of this alternative. Because these measures would also be implemented as part of Alternative A, direct and indirect impacts on water supply would be less than significant. Impacts under Alternative A would be similar in nature to those described under the no action (no permit) alternative for flooding and drainage. However, Alternative A would also result in direct impacts on	acre of waters of the U.S. The measures identified as part of the no action (no permit) alternative and Alternative A are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. Cumulative impacts would be less than significant.	certification. To minimize impacts on water quality, the measures applied to the no action (no permit) alternative are recommended to be implemented for Alternative C. The USACE does not have the authority to implement these measures. Because it is uncertain whether measures other than those required by federal and state regulations would be required by Fresno and Kings Counties, direct and indirect impacts on surface water and groundwater quality are potentially significant. Construction may result in impacts on water supply that are similar to those discussed under construction for the no action (no permit) alternative. The various regulatory requirements discussed under construction for the no action (no permit) alternative would apply. The Notice of Preparation for the Westlands Solar Park (Westlands Water District 2013) indicated that a water supply assessment would be required pursuant to Senate Bills 610 and 221 in order to verify that solar development would not have a substantial impact on groundwater supply. As a result, there would be less than significant direct impacts on water supply.

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	in additional impervious surfaces that can reduce surface water infiltration and subsequently increase surface water runoff or alter surface water drainage patterns. Under the no action (no permit) alternative, flood and stormwater retention capacity would be maintained and protected. Impacts on flood retention values of the jurisdictional ephemeral drainages would be minimized by constructing at-grade road crossings and backfilling utility line crossings to original grade. Stormwater would be managed primarily through the use of planted and maintained grassland habitat and revegetation of exposed soils on the project site and through the use of two stormwater basins. Regulatory requirements and measures included as part of the no action (no permit) alternative would minimize the potential for changing flooding and drainage from impervious surfaces, grading, and placing structures or fill in areas containing water resources. Because of these measures, the vegetation that would be planted beneath solar arrays, the buffers from waters of the U.S., and the relatively gentle slopes, impacts on flooding and drainage would be less than significant. Operational and maintenance activities would result in impacts on water quality and water supply similar to those described for construction. Implementation of regulatory	flooding and drainage as a result of the discharge of fill material into 0.1210~~.122~~ acre of waters of the U.S. The various regulatory requirements and measures to reduce impacts described as part of the no action (no permit) alternative are included as part of Alternative A and would minimize the potential for changing flooding and drainage from impervious surfaces, grading, and placement structures or fill in 0.1210~~.122~~ acre of waters of the U.S. As a result, impacts on flooding and drainage from Alternative A would be less than significant. Cumulative impacts would be less than significant.		Given that the Westlands CREZ is over 35,000 acres, the USACE has determined that it is reasonable to assume that a 247 MW solar facility could be developed that avoided placement of structures in the 100-year floodplain. Impacts on flooding and drainage would therefore be less than significant. Operational and maintenance activities would result in impacts on water quality that are similar to those discussed under construction for Alternative C. The recommended mitigation measures and regulatory requirements would reduce impacts to less than significant levels. Panel washing would have less than significant impacts on water supply. No impacts on flooding and drainage would occur. Cumulative impacts would be less than significant.

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	requirements and measures described above would reduce impacts to less than significant levels. Operational and maintenance activities would have no impacts related to flooding and drainage. Cumulative impacts would be less than significant.			
		Land Use, Ownership, and Planning		
No new impacts. Existing land uses at the proposed project site and on surrounding mitigation lands would continue. No telecommunication upgrades would occur. There would be no changes in land use on the project site, and no land use impacts would occur. Under the no action (no build) alternative, conservation lands would not be created; therefore, maintaining these lands as undeveloped open space in perpetuity would not be guaranteed.	Less than significant impacts. The no action (no permit) alternative would not conflict with any applicable land use plan, policy, or regulation. In approving the conditional use permit for the project, San Benito County determined that the solar facility is an allowed use and, as conditioned, is compatible with the objectives, policies, general land uses, and programs specified in the general plan. Construction of the no action (no permit) alternative would not directly or indirectly divide an established community. While the no action (no permit) alternative would introduce a different land use into the Panoche Valley, this land use would not prevent the continued agricultural and residential land uses of surrounding lands or lands throughout the Panoche Valley. Construction of the no action (no permit) alternative would temporarily disrupt surrounding residential land uses and the	Less than significant impacts. Direct and indirect impacts from construction and operational and maintenance activities would be the same as described above for the no action (no permit) alternative. The measures identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. Impacts associated with PG&E primary and secondary telecommunication network upgrades would be the same as described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	Less than significant impacts. Direct and indirect impacts from construction and operational and maintenance activities would be the same as described above for the no action (no permit) alternative. The measures identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. Impacts associated with PG&E primary	Less than significant impacts. Development of a 247 MW solar facility on lands within the Westlands CREZ would be consistent with both the Fresno County and Kings County General Plans. Both plans allow development of commercial solar generation facilities on lands zoned as agriculture through the conditional use permit ting process. Construction activities would have indirect impacts on residential land uses or other sensitive land uses to the extent that these land uses exist within proximity of a proposed project site and the area roadways leading to the site. Because there are limited residences and other sensitive lands uses adjacent to the Westlands CREZ, these impacts are expected to be less than significant.

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	Panoche Elementary School. Mitigation measures have been incorporated into the no action (no permit) alternative and, as a result, indirect impacts from disruption of surrounding land uses would be temporary and less than significant. The presence of the solar infrastructure would have a long-term less than significant indirect impact on scattered rural residences, recreationists en-route to BLM-administered lands, and other travelers through the Panoche Valley by altering the rural and agricultural character of the immediate project area. Creating permanent conservation easements on the 10,772-acre Valadeao Ranch and 10,890-acre Silver Creek Ranch would ensure that the open space value and rural character of these lands are preserved in perpetuity. Operational and maintenance activities for the solar facility are allowable activities and would not conflict with any local plans or regulations. These activities would not divide a community or disrupt uses on surrounding lands. Impacts would be less than significant. Temporary and intermittent construction-related activities along the PG&E Moss Landing-Panoche transmission line would not disrupt current land uses on or surrounding the work areas. Collocation of microwave equipment on existing		and secondary telecommunication network upgrades would be the same as described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	The presence of a solar facility within the Westlands CREZ would introduce a nonagricultural, industrial use into a predominantly agricultural portion of the affected county. The presence of a solar facility would have a less than significant indirect impact on the character of the rural setting. A solar facility in the Westlands CREZ would have no direct impact on recreation, as no recreational uses exist on the Westlands CREZ. Operational and maintenance activities would have less than significant land use impacts. Cumulative impacts would be less than significant.

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	towers at Call and Panoche Mountains and construction of a new tower at the Helm Substation would have no impact on land use. Cumulative impacts would be less than significant.			
		Socioeconomics		
No new impacts. Existing land uses at the proposed project site and on surrounding mitigation lands would continue. No telecommunication upgrades would occur. Beneficial impacts on employment and the local economy from construction-related jobs and expenditures would not occur.	Less than significant impacts. The no action (no permit) alternative would result in direct temporary impacts on local employment, resulting in a peak force of approximately 100 to 500 workers for daytime crews and 20 to 50 workers for nighttime activities for 18 months. The construction workforce would contribute to the local economy and would have indirect beneficial impacts through employment and income. The creation of up to 500 construction jobs in the region would result in a temporary reduction in unemployment and a temporary increase in employment in the region. This beneficial indirect impact would be a less than significant due to the small level of the increase and the short-term nature of employment. The no action (no permit) alternative includes a measure to provide construction contractors with information on temporary housing opportunities to offset issues associated with lodging capacity. By providing time to coordinate temporary housing opportunities, this	Less than significant impacts. Direct and indirect impacts on socioeconomic resources under Alternative A would be the same as described for the no action (no permit) alternative. The measure identified as part of the no action (no permit) alternative related to temporary housing is also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. Less than significant impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	Less than significant impacts. Direct and indirect impacts on socioeconomic resources under Alternative B would be the same as described above for the no action (no permit) alternative. The measure identified as part of the no action (no permit) alternative is also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. Less than significant impacts associated with PG&E primary and secondary	Less than significant impacts. The creation of up to 500 construction jobs in the region would have a small temporary reduction in unemployment and a beneficial impact on employment in the region. Impacts would be similar to those described for the no action (no permit) alternative. Adequate temporary lodging is expected to be available in the project area. Given the relatively small number of temporary housing units that are anticipated to be needed, impacts related to construction housing would be less than significant. The full-time operational and maintenance staff would consist of up to 50 people. This would represent a minor increase in the local employment and population and would not result in measureable direct or indirect impacts on housing availability or cost. Local

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	alternative would have less than significant direct impacts on housing supply. The full-time operational and maintenance staff would consist of up to 50 people. This would represent a minor increase in the local employment and population and would not result in measureable direct or indirect impacts on housing availability or cost. Local governments would benefit economically from tax revenues during project operation. Direct and indirect impacts from PG&E telecommunication upgrades would be similar to those described above, but at a much lesser scale. Cumulative impacts would be less than significant.		telecommunication network upgrades are the same as those described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	governments would benefit economically from tax revenues during project operation. Cumulative impacts would be less than significant.
		Environmental Justice		
No new impacts. No solar facility would be constructed; therefore, there is no potential for disproportionate adverse impacts on minority or low-income populations and no increased potential for adverse impacts on children.	Less than significant impacts. A minority or low-income population as characterized by CEQ does not exist in the immediate project area. Therefore, there would be no significant disproportionate adverse impacts on minority populations or low-income populations. The Panoche Elementary School is 1 mile from the project footprint boundary. Measures are included as part of the no action (no permit) alternative to minimize impacts by providing advance notice of construction activities, reducing noise	Less than significant impacts. Direct and indirect impacts on environmental justice under Alternative A would be the same as described for the no action (no permit) alternative. Measures to reduce impacts identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than	Less than significant impacts. Direct and indirect impacts on environmental justice under Alternative B would be the same as described for the no action (no permit) alternative. Measures to reduce impacts identified as part of the no action (no permit) alternative are	Less than significant impacts. A specific project site in the Westlands CREZ has not been determined; however, all census tracts there contain minority populations. Similarly, Kings County census tract 16.01 contains a low-income population. Construction would temporarily increase noise, traffic, and dust, which could result in temporary changes to the quality of life for area residents, particularly for those near the construction site. Impacts would be less than

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	levels from vehicles and equipment, and by implementing specific measures to improve traffic safety. In addition, the school site is fenced, which would prevent children from inadvertently leaving school grounds. Because these measures have been incorporated into the no action (no permit) alternative, impacts would not pose a substantial health or safety risk to children and impacts would be less than significant. Long term, project facilities would be fenced and no public access would be permitted. Therefore, no long-term indirect impacts would occur for children at Panoche Elementary School. Impacts from operational and maintenance activities would be less than significant. Due to the lack of residents in the immediate area proposed for telecommunications upgrades, no impacts are anticipated on minority populations, children, or issues of tribal concern for either primary or secondary telecommunication upgrades. Cumulative impacts would be less than significant.	significant. Less than significant direct impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. Less than significant direct impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	significant for all populations, including minority populations. In addition, public involvement and outreach designed to target all socioeconomic populations and Spanish language outreach materials would aid in informing potentially impacted populations about the proposed project. These instruments would also contain information about opportunities for involvement and measures that would be required to reduce the level of impact. The USACE does not have the authority to require outreach for a project constructed at the Westlands CREZ; however, such outreach would likely be required to be undertaken by the appropriate county for any CEQA compliance necessary in evaluating a conditional use permit application. Children at the two schools within two miles of the CREZ could be disproportionately affected by construction impacts related to noise, traffic, and health and safety. Measures to reduce noise, address traffic safety concerns, and require fencing of the construction site would result in less than significant impacts if fully implemented.

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				Impacts from operational and maintenance activities would be as described for the no action (no permit) alternative. Cumulative impacts would be less than significant.
		Noise		
No new impacts. Existing land uses at the proposed project site and on surrounding mitigation lands would continue. No telecommunication upgrades would occur. Noise levels would remain the same as those currently experienced.	Less than significant impacts. Noise from construction equipment on the project site would be short term, temporary, and intermittent. Measures included as part of the no action (no permit) alternative would require limiting noisy equipment use near property boundaries, shielding staging areas, implementing noise suppression techniques for equipment, and limiting pile driving activities. While construction noise may sometimes exceed County noise standards over the course of the construction period, the County approved this exceedance with a determination that the benefits of the project outweigh the temporary noise impacts that would be associated with construction. Because the County approved the increased noise levels associated with construction of the no action (no permit) alternative, this impact would be less than significant. Nighttime activities on the project site would be limited; primary noise sources would be vehicles used by security patrols	Less than significant impacts. Direct and indirect noise impacts under Alternative A would be the same as described above for the no action (no permit) alternative. The applicant-proposed measure and County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. Less than significant impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	Less than significant impacts. Direct and indirect noise impacts under Alternative A would be the same as described above for the no action (no permit) alternative. The applicant-proposed measure and County-required mitigation measures identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. Less than significant impacts associated	Less than significant impacts. Noise-related impacts under Alternative C are similar to those described under the no action (no permit) alternative. Noise levels would be short term, temporary, and intermittent, and the level of impact would depend on the location of the project site and the distance to sensitive land uses, such as schools or residences. With exemption of construction from noise standards during daytime hours in Fresno County and no noise standards in Kings County, construction of a proposed solar facility at the Westlands CREZ would likely be in conformance to applicable county standards. Direct impacts would be less than significant. Traffic-related construction noise impacts would be similar to those described for the no action (no permit) alternative along State

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Summary of Environmental Impacts

No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's ~~Proposed Project~~ Preferred Alternative)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	and research crews. Therefore, noise impacts during nighttime hours would be less than significant. Construction-related traffic would be a source of noise along area roadways. Discrete maximum noise levels along delivery and commuting routes would likely not exceed current levels, but average daytime noise levels and the frequency of noise exposure would increase due to the additional number of vehicles. Measures included as part of the no action (no permit) alternative would limit truck noise and provide advance notice of construction activities along with advice for reducing noise exposure. With implementation of these measures, construction-related indirect noise impacts would be less than significant. Noise from operation of the proposed project would be limited to vehicle use, the transformers and inverters, and heating, ventilation, and air conditioning systems. Sensitive noise receptors would be separated from the equipment by a great enough distance to meet the San Benito County noise standards. Operation of the collector lines would produce no notable noise or hum and would therefore have no impact. Vehicle traffic generated by permanent employees would represent a negligible increase in ambient noise levels. Panel washing would be limited to twice yearly and restricted to Monday through Saturday 7:00 a.m. to 7:00 p.m.,		with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	Routes 41 and 198, the primary roads likely to be used for accessing the CREZ. Impacts would likely be less than significant, as there are scattered rural residences along these routes. Impacts from operational and maintenance activities would be similar to those described for the no action (no permit) alternative. Permitting for a solar facility would likely require design features such as shielding and spacing to ensure that operational-related noise complied with applicable noise standards for Fresno or Kings Counties in conformance with county regulations and ordinances. Given county regulations and the limited number of sensitive land uses near the Westlands CREZ, long-term noise impacts on surrounding land uses would likely be less than significant. Cumulative noise impacts would occur from development of the Westlands Solar Park The degree of cumulative impact would depend upon the location of the project, the location of other projects in the area, and the location of sensitive receptors and cannot be qualified at this time.

Table ES-4
Summary of Environmental Impacts

No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's ~~Proposed Project~~ Preferred Alternative)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	excluding federal holidays, when occurring within 1,900 feet of the property line. Because of these operational limitations, noise impacts would be less than significant. Heavy machinery and helicopters along the Moss Landing-Panoche transmission line would temporarily increase ambient noise levels at nearby rural residences by more than 10 dBA. Because these activities would be temporary and intermittent and confined to daytime hours, they would result in a less than significant impact. Cumulative impacts would be less than significant.			
Public Health and Safety, Including Hazardous Materials				
No new impacts. Existing land uses at the proposed project site and on surrounding mitigation lands would continue. No telecommunication upgrades would occur. There would be no change to existing public health and safety conditions.	Less than significant direct impacts. Construction of the facility would follow federal, state, and local laws and regulations governing handling and storage of hazardous materials. All construction activities would be performed by trained personnel and would be carried out in compliance with Occupational Safety and Health Act (OSHA) requirements to minimize the risk of construction-related accidents, injuries, or spills. Measures included as part of the no action (no permit) alternative would require fugitive dust minimization to the maximum extent	Less than significant impacts. Direct and indirect impacts under Alternative A are the same as those described for the no action (no permit) alternative. The measures identified as part of the no action (no permit) alternative are also included as part of this alternative. As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant.	Less than significant impacts. Direct and indirect impacts under Alternative B are the same as those described for the no action (no permit) alternative. The measures identified as part of the no action (no permit) alternative are also included as part of this alternative.	Less than significant impacts. Potential health and safety direct and indirect impacts are similar to those described under the no action (no permit) alternative. They include transportation of hazardous materials and potential for spills, wildfire risk, destructive acts, disease transmission, and exposure to Valley Fever. Measures similar to those described under the no action (no permit) alternative are recommended to minimize potential risks to on-site construction

Table ES-4
Summary of Environmental Impacts

No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's ~~Proposed Project~~ Preferred Alternative)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	practicable, ceasing grading, welding, soldering, and smoking during high fire-risk days, preventing standing water, protecting workers and the public from Valley Fever, and implementing service agreements with firefighting entities. With regulatory controls pertaining to hazardous material use and storage and implementation of the measures described above, impacts related to public health and safety would be less than significant. Operational and maintenance activities would require small quantities of petroleum products (fuels and lubricating oils), motor vehicle fuel, and common hazardous materials. Potential impacts related to releases of these materials would be minimized by training personnel in handling and storing hazardous materials in compliance with OSHA standards. The Spill Prevention, Control, and Countermeasure Plan would ensure proper storage and treatment of hazardous materials during operation and procedures to follow in the event of an accidental release. Impacts related to hazardous material storage and use would be less than significant. With regard to intentional destructive acts, the project footprint would be fenced and access would be restricted via a security gate. The applicant would provide 24-hour on-site security personnel to discourage acts of vandalism.	Less than significant direct impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	As described for the no action (no permit) alternative, direct and indirect impacts would be less than significant. Less than significant direct impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	workers, off-site residents, and agricultural workers. The USACE does not have the authority to implement any of these measures, so their implementation is uncertain. Application of these measures would ensure impacts are less than significant by minimizing potential risks to on-site construction workers, off-site residents, and agricultural workers. Potential health and safety impacts from operational and maintenance activities would be similar to those described under the no action (no permit) alternative. They include transportation of hazardous materials and potential for spills, wildfire risk, destructive acts, disease transmission, and exposure to Valley Fever. Measures similar to those described under the no action (no permit) alternative are recommended. The USACE does not have the authority to implement any of these measures, so their implementation is uncertain. Fire protection services would be provided by Kings County Fire Department stations in the vicinity of Westlands CREZ (Stratford, Kettleman City, and Avenal) under agreement with the project proponent (Westlands Water District 2013). With implementation

Table ES-4
Summary of Environmental Impacts

No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's ~~Proposed Project~~ Preferred Alternative)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	Signs warning of electrical hazards would be posted. With these security measures in place, the risk of intentional destruction would be less than significant. Operational and maintenance activities could result in wildfire. The agreement with the San Benito County Fire Department would include such measures as maintaining vegetation to minimize ignition risk and ceasing all nonemergency work during a red flag warning. Because these measures are included as part of the no action (no permit) alternative, operation-related wildland fire impacts would be less than significant. Project operational and maintenance activities would minimally disturb on-site soils and would not create a risk of causing Valley Fever fungal spores to become airborne. As such, impacts would be less than significant. Potential exposure of sensitive receptors to hazardous materials during PG&E telecommunication upgrade activities is low. With measures to reduce fire risk included as part of the no action (no permit) alternative, impacts related to fire and emergency response would be less than significant. Cumulative impacts would be less than significant.			of these measures, operation-related public health and safety impacts would be less than significant. Cumulative impacts would be less than significant.

Table ES-4
Summary of Environmental Impacts

No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's ~~Proposed Project~~ Preferred Alternative)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
		Traffic and Transportation		
No new impacts. Existing land uses at the proposed project site and on surrounding mitigation lands would continue. No telecommunication upgrades would occur. Traffic and transportation conditions would remain the same as those currently experienced.	Less than significant impacts. The no action (no permit) alternative would indirectly affect the local transportation network during the construction period. Construction-related traffic would not result in a decrease in level of service (LOS) on area roadways; however, individual drivers would likely experience temporary delays along Little Panoche Road and Panoche Road. Because measures have been included as part of the no action (no permit) alternative to implement a traffic control plan that minimizes impacts on the transportation system and on individual drivers, impacts would be indirect and less than significant. The increase in the number of vehicles on the roads, especially during the peak construction worker arrival and departure timeframes, could indirectly increase the potential for vehicular accidents (construction workers and the public) in the project area. Measures included as part of the no action (no permit) alternative require the applicant- to prepare and implement a traffic safety plan that mitigates potential impacts on emergency response agencies and ensures the ability of emergency service providers to access the region during construction and to ensure the safety of all motorists during peak use of the regional roadways.	Less than significant impacts. The indirect impacts on transportation are the same as described under the no action (no permit) alternative. The measures identified as part of the no action (no permit) alternative to reduce impacts are also included as part of this alternative. As described for the no action (no permit) alternative, indirect impacts would be less than significant. Less than significant indirect impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	Less than significant impacts. The impacts on transportation are the same as described under the no action (no permit) alternative. The measures identified as part of the no action (no permit) alternative to reduce impacts are also included as part of this alternative. As described for the no action (no permit) alternative, indirect impacts would be less than significant. Less than significant indirect impacts associated with PG&E primary and secondary telecommunication network upgrades are the same as those described under the no action (no permit) alternative. Cumulative impacts would be less than significant.	Less than significant impacts. During construction, transportation systems around the Westlands CREZ would be indirectly impacted by an increase in traffic due to an influx of construction workers and the delivery of construction equipment and materials. To mitigate short-term transportation impacts from materials and equipment deliveries, a traffic control plan should be prepared to identify any road restrictions for delivery vehicles, including designated haul routes and oversized vehicle requirements. The USACE does not have the authority to implement this mitigation measure. It is likely that it would be required, though, through the Fresno or Kings County approval process of a conditional use permit. To mitigate potential impacts on emergency response agencies, a traffic safety plan should be prepared and implemented to ensure the ability of emergency service providers to access the region during construction and to ensure the safety of motorists (construction workers and the public) during peak use of the regional roadways. The

Table ES-4
Summary of Environmental Impacts

No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's ~~Proposed Project~~ Preferred Alternative)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	Because this measure is part of the no action (no permit) alternative, the short-term impacts on emergency vehicle operators' ability to respond to emergencies on the roadways in the project area would be indirect and less than significant and would not impact motorist safety. The no action (no permit) alternative has the potential to produce disproportionate wear and tear on the roadway system, damage culverts, and affect already deteriorated road conditions. Measures included as part of the no action (no permit) alternative would require the applicant to rehabilitate damaged pavement prior to construction, restore all public roads, easements, rights-of-way, and infrastructure that have been damaged due to project-related construction, and monitor and repair culverts along area roadways. Because roadways will be restored to pre-project conditions, impacts would be indirect and less than significant. Operation of the no action (no permit) alternative would not require regularly scheduled truck trips. The traffic generated by the project during operation would not adversely affect traffic operations on the surrounding local roadways and intersections. Therefore, impacts on transportation would be less than significant.			USACE does not have the authority to implement this mitigation measure. It is likely that it would be required, though, prior to obtaining county approval for construction because this is a common requirement to mitigate safety risks. Project-generated traffic, especially heavy truck traffic, would accelerate the rate of deterioration of public roads traveled. The hauling contractor would be required to comply with state regulations relating to truck weight, including obtaining permits for oversized loads, which would minimize potential impacts on bridge and culvert crossings. Before the start of and during construction, the applicant should coordinate with affected jurisdictions and implement appropriate measures to rehabilitate roadways and to protect and monitor roadway pavement and bridges and culverts. The USACE does not have the authority to implement this mitigation measure. It is likely that it would be required, though, prior to obtaining county approval for construction because this is a common requirement for projects that may damage public roads.

Table ES-4
Summary of Environmental Impacts

No Action (No Build) Alternative	No Action (No USACE Permit) Alternative	Alternative A (Applicant's ~~Proposed Project~~ Preferred Alternative)	Alternative B (On-site Alternative)	Alternative C (Off-site Alternative, Westlands CREZ)
	There may be infrequent and localized disruptions of vehicle traffic from PG&E telecommunication upgrade activities as construction personnel access wire pulling, tensioning, and splicing sites. Traffic disruption during overhead crossings of public roads would be minimized via implementation of a traffic control plan. Impacts would be indirect and less than significant. Cumulative impacts would be less than significant.			The workforce for operations, maintenance, and security purposes would be substantially less than during construction and would generate substantially fewer average daily trips. The traffic generated by the project during operation would not adversely affect traffic operations on the surrounding local roadways and intersections. Therefore, long-term impacts on transportation would be less than significant. Cumulative impacts would be less than significant.

CHAPTER 1
INTRODUCTION AND STATEMENT OF PURPOSE AND NEED

1.1 INTRODUCTION

Panoche Valley Solar, LLC (the applicant) is proposing to construct the Panoche Valley Solar Facility, a photovoltaic (PV) generating facility in eastern unincorporated San Benito County, California. The proposed project site contains drainages that have been determined to be jurisdictional waters of the U.S. Construction of the proposed project requires a Department of the Army permit from the US Army Corps of Engineers (USACE) to discharge fill material into these waters, in accordance with Section 404 of the Clean Water Act.

In 2012, the USACE, as the lead agency responsible for complying with the National Environmental Policy Act (NEPA; 42 United States Code [USC], Sections 4321-4370h), made a preliminary determination that the proposed project constitutes a major federal action that may result in significant impacts on the environment and that the preparation of an environmental impact statement (EIS) was required.

This EIS has been prepared in accordance with NEPA, the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 Code of Federal Regulations [CFR], Parts 1500-1508), US Army Corps of Engineers Procedures for Implementing NEPA (33 CFR, Part 230), and Processing of Department of the Army Permits (33 CFR, Part 325, Appendix B, NEPA Regulation).

The US Fish and Wildlife Service (USFWS) is a cooperating agency for this EIS. It has responsibility for issuing a biological opinion on the proposed project under Section 7 of the Endangered Species Act. The USFWS issued its biological opinion for the applicant's proposed project on October 5, 2015; the biological opinion is included in **Appendix G** of this Final EIS.

The Draft EIS for the Panoche Valley Solar Facility project was published on September 11, 2015. Changes to the Final EIS text are indicated by underlining for new text and ~~strikethrough~~ for deleted text. The primary revisions include the following:

- Reductions in the proposed project footprint (and associated reductions in project impacts) and increases in the acreage of conservation lands under the applicant's preferred alternative (Alternative A). These changes were a result of the applicant's consultation with the California Department of Fish and Wildlife (CDFW), as reflected in the CDFW incidental take permit issued on November 20, 2015
- Removal of the Panoche Creek bridge crossing resulting from further discussion with the Hollister Fire Department
- Changes in affected environment information provided through public comment
- Changes in environmental impact analysis resulting from public comment or from the changes described in the bullets above
- Minor editorial revisions

1.2 PROPOSED PROJECT REQUIRING ENVIRONMENTAL ANALYSIS

The applicant is proposing to construct an approximately 247 megawatt (MW) PV generating facility on ~~2,506~~2,154 acres (project footprint). The project footprint is in unincorporated eastern San Benito County, California, approximately 30 miles south of Los Banos and 60 miles west of Fresno. The site is 2 miles from the Fresno County line and 15 miles west of Interstate 5 and the San Joaquin Valley (**Figure 1-1~~Figure 1-1~~Figure 1-1**). The solar facility and all associated land would be on property that is controlled by the applicant. The proposed project is identified as the applicant's preferred alternative (Alternative A) in this Final EIS.

The current project output is approximately 339 megawatts of direct-current (MW_{DC}) power, or 247 megawatts of alternating current (MW_{AC}) power. This output is based on the current project design and current PV panel technology. The actual output at the time the facility is brought online would depend on PV technology and uncertainties, such as line losses. Actual output may be greater than the estimated output at project startup or over the life of the facility as solar technology improves.

Power from the project would be delivered via the Pacific Gas & Electric Company (PG&E) Moss Landing-Panoche 230 kilovolt (kV) transmission line that runs in an east-west direction through the project site. The applicant signed a large generator interconnection agreement with PG&E for the project in January

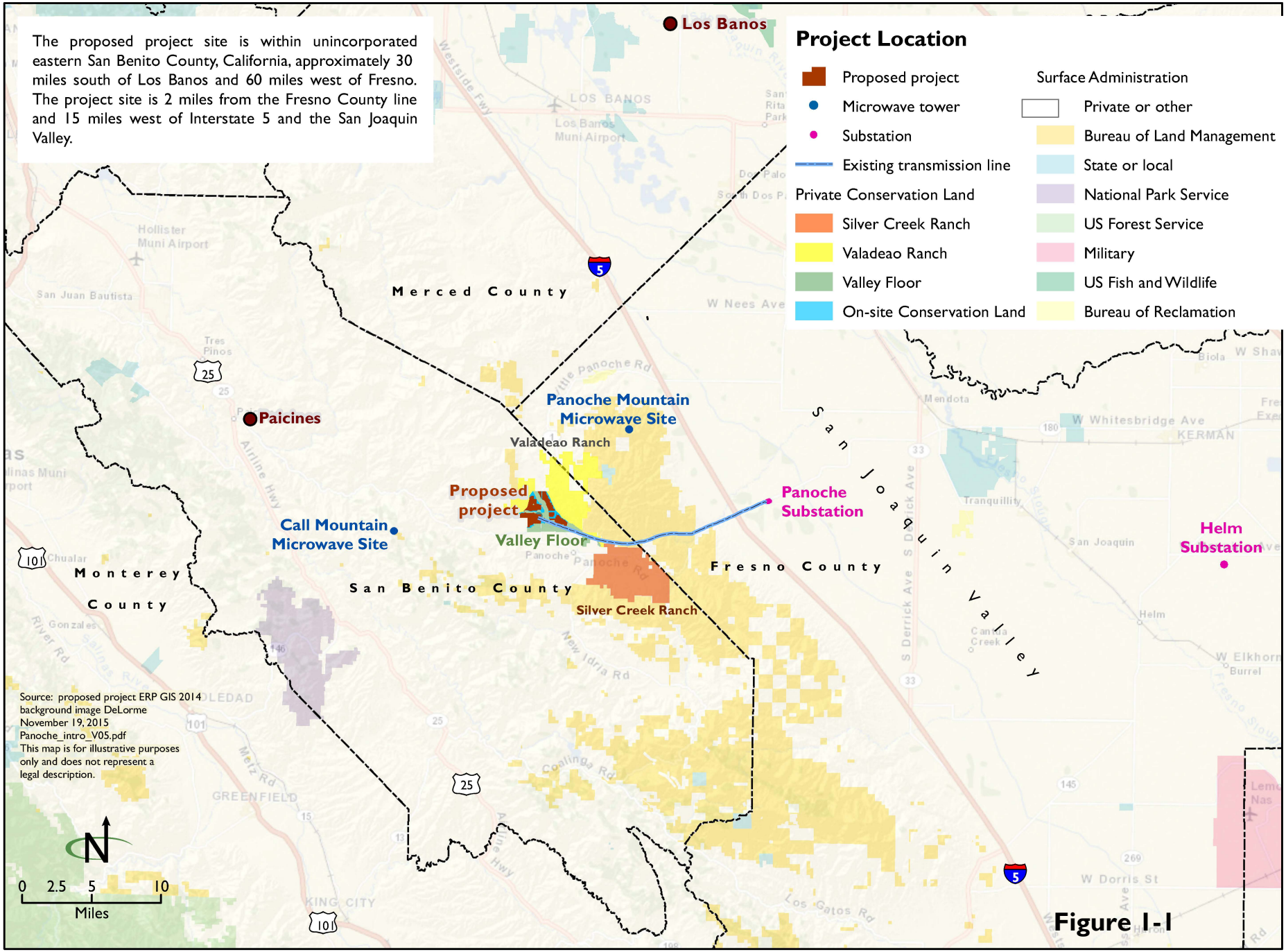

The proposed project site is within unincorporated eastern San Benito County, California, approximately 30 miles south of Los Banos and 60 miles west of Fresno. The project site is 2 miles from the Fresno County line and 15 miles west of Interstate 5 and the San Joaquin Valley.
Project Location
Proposed project
Microwave tower
Substation
Existing transmission line
Private Conservation Land
Silver Creek Ranch
Valadeao Ranch
Valley Floor
On-site Conservation Land
Surface Administration
Private or other
Bureau of Land Management
State or local
National Park Service
US Forest Service
Military
US Fish and Wildlife
Bureau of Reclamation
Los Banos
Merced County
Paicines
Panoche Mountain Microwave Site
Valadeao Ranch
Proposed project
Panoche Substation
Call Mountain Microwave Site
Valley Floor
Fresno County
San Benito County
Silver Creek Ranch
Monterey County
San Joaquin Valley
Helm Substation
Source: proposed project ERP GIS 2014
background image DeLorme
November 19, 2015
Panoche_intro_V05.pdf
This map is for illustrative purposes only and does not represent a legal description.
N
0 2.5 5 10
Miles

Figure 1-1

2014. This agreement confirms that the project's electricity output would be deliverable to the transmission grid. It also specifies the interconnection and network facilities that would be required to interconnect the project with the PG&E Moss Landing-Panoche 230 kV transmission line. The applicant executed a power purchase agreement for the project in August 2014. Under this agreement, Southern California Edison is obligated to purchase and the applicant is obligated to deliver 247 MW_{AC} of power annually for 20 years beginning in 2019.

The proposed solar facility would consist of the following:

- A solar field of ground-mounted PV modules
- An underground electrical collection system that converts generated power from direct current to alternating current
- A project substation that collects and converts the alternating current from 34.5 kilovolts to 230 kilovolts
- A switching station that delivers the generated power to the state electrical grid

In addition, the applicant is proposing to conserve all lands within the project site that are outside of the project footprint to maintain and enhance habitat conditions for federal and state listed species. Approximately 2,514 acres interspersed throughout and next to the project footprint would be left undisturbed; this area would be designated as Valley Floor Conservation Lands. Another 442 acres of on-site conservation lands contiguous with the project footprint would also be placed into conservation. These lands include areas with dense populations of wildlife, wildlife movement corridors within on-site drainages and 100-year floodplains, as well as open space in the southern portion of the project site.

The applicant is also proposing to permanently preserve and manage two large ranches: the Valadeao Ranch Conservation Lands (10,772 acres) and the Silver Creek Ranch Conservation Lands (10,890 acres). These ranchlands are contiguous with the project site and with each other. Conservation lands are being proposed as mitigation to offset potential impacts on listed species from constructing and operating the proposed solar facility. The applicant is also proposing to provide permanent protection and management of at least 1,000 acres of Additional Conservation Lands. These Additional Conservation Lands would be located within the Panoche Valley and approved in advance by CDFW. These lands would be high-quality, in-kind habitat for giant kangaroo rat. The applicant would secure these Additional Conservation Lands prior to the start of construction.

In total, the ~~proposed project~~applicant's preferred alternative would conserve ~~24,176~~25,618 acres. The lands, which are part of the applicant's ~~proposed~~

~~project~~preferred alternative, would be preserved and managed in perpetuity through a conservation easement. Most of these lands are in eastern San Benito County, but a small portion is in western Fresno County (see **Figure 2-3**, Applicant's ~~Proposed~~ Preferred Alternative~~Project~~, in **Chapter 2**).

For the purposes of this EIS, the following terms are used to describe the applicant's ~~proposed project~~preferred alternative:

- ~~Proposed project~~Applicant's Preferred Alternative—An approximately 247 MW solar facility constructed on ~~2,506~~2,154 acres and the permanent preservation and management of ~~24,176~~25,618 acres of conservation lands
- Project site—The ~~2,506~~2,154-acre project footprint evaluated for solar facility development and the ~~24,176~~25,618 acres of conservation lands
- Project footprint—The footprint of the proposed ~~2,506~~2,154-acre Panoche Valley Solar Facility
- Conservation lands—The ~~24,176~~25,618 acres of land that would be preserved and managed in perpetuity through conservation easements; these lands are described in the EIS as follows:
  - Valley Floor Conservation Lands—2,514 acres interspersed throughout and next to the project footprint that would be left undisturbed; This area includes wildlife movement corridors and wildlife avoidance areas in on-site drainages and 100-year floodplains, as well as open space
  - Valadeao Ranch Conservation Lands—10,772 acres of rangeland north, northwest, and east of the project footprint
  - Silver Creek Ranch Conservation Lands—10,890 acres of rangeland southeast of the project footprint
  - On-site Conservation Lands—442 acres contiguous with the project footprint that would be left undisturbed; this area includes wildlife movement corridors, wildlife avoidance areas, and open space
  - Additional Conservation Lands—1,000 acres of land identified as suitable habitat for giant kangaroo rat

There are no jurisdictional wetlands or other special aquatic sites (i.e., sanctuaries and refuges, mud flats, vegetated shallows, coral reefs, or riffle and pool complexes) in the project footprint.

The ~~proposed project~~applicant's preferred alternative would discharge fill material into 0.121~~0.122~~ acre (approximately 3,504 linear feet) of jurisdictional

ephemeral stream channels on the eastern and western portions of the project footprint. Approximately ~~0.002~~0.001 acre of ~~impact~~ fill material would be placed into~~would occur at~~ Las Aguilas ~~and Panoche~~ Creek~~s~~, for the construction of ~~two~~ a single-span bridge crossing~~s~~ as part of the road around the project facility. The discharge of fill material would occur in ~~A~~approximately 0.12 acre ~~would be affected in~~of three unnamed drainages on the eastern side of the project site; this would be associated with installing the perimeter fence and perimeter road and grading/trenching to install the solar arrays. The applicant has avoided impacts on all other waters of the U.S. in the project footprint.

The measures that the applicant has proposed to avoid, minimize, or compensate for impacts on waters of the U.S. are described below.

The applicant would avoid impacts on waters of the U.S. as follows:

- Eliminate jurisdictional ephemeral stream channel crossings to the maximum extent practicable
- Eliminate electrical collection system jurisdictional ephemeral stream channel crossings (redesign crossings to be aerial crossings) to the maximum extent practicable
- Avoid placement of project structures (i.e., solar arrays, substation, operations and maintenance building, fencing, and the majority of the interior road network) Within jurisdictional ephemeral stream channels to the maximum extent practicable

The applicant would minimize impacts on waters of the U.S. as follows:

- Minimize the number of permanent jurisdictional ephemeral stream crossings to the maximum extent practicable
- Minimize roadway width to the extent practicable in consideration of load requirements, vehicle type, and width and safety requirements
- Minimize ground disturbance during construction in areas adjacent to jurisdictional ephemeral stream channels
- Cover well-used roads on the project footprint with gravel to minimize sediment transport
- Minimize trash production and protect wildlife from waste materials
- Maintain grassland groundcover following solar facility completion

The applicant is proposing to compensate for the ~~unavoidable impacts~~discharge of fill material into ~~on~~ ~~0.122~~0.121 acre of waters of the U.S. on the project footprint by protecting, enhancing, or restoring Panoche Creek and Silver Creek ~~on the Silver Creek Ranch Conservation Lands~~ as follows:

- Enhance 0.40 acre of intermittent and ephemeral streams on the Valadeao Ranch and Silver Creek Ranch off-site conservation lands by removing seven debris areas and stabilizing stream banks

  Enhancement activities at two of the debris removal areas may result in the discharge of fill material into~~impact~~ up to 0.096 acre of waters of the U.S. subject to USACE jurisdiction through grading activities:

  - Debris Removal Area 1b (0.003-acre area)
  - Debris Removal Area 4 (0.093-acre area)
- Enhance 11.16 acres of Panoche Creek on the Silver Creek Ranch off-site conservation lands by partially excluding livestock to restore native vegetation and riparian areas
- Create three breeding ponds, totaling 0.50 acre, for California tiger salamander

1.3 BACKGROUND AND HISTORY

In October 2009 the applicant applied for a conditional use permit from San Benito County to develop a 1,000 MW_{AC} PV solar energy project on approximately 10,000 acres in the Panoche Valley. In response to concerns about the size of the project and the potential environmental impacts, the project applicant collaborated with San Benito County to reduce the project size to 420 MW_{AC} on approximately 4,700 acres. San Benito County prepared a draft environmental impact report (EIR) to analyze the environmental impacts of this proposal.

Comments received from the public, the USFWS, and the California Department of Fish and Wildlife (CDFW) raised concerns regarding the 420 MW_{AC} project's impacts on the following protected wildlife species:

- Blunt-nosed leopard lizard (*Gambelia silus*)
- Giant kangaroo rat (*Dipodomys ingens*)
- San Joaquin kit fox (*Vulpes macrotis mutica*)
- California tiger salamander (*Ambystoma californiense*)

In response to these comments and internal discussions after reviewing the results of biological studies done in 2010, the applicant reduced the proposed project scope from 420 MW_{AC} to 399 MW_{AC} and redesigned it to avoid the most biologically sensitive areas. San Benito County released a final EIR in September 2010 and approved a conditional use permit for the project in October 2010.

In response to continuing concerns from the USFWS and CDFW, additional biological surveys were conducted in 2013 and 2014 to further document the

distribution of blunt-nosed leopard lizard, giant kangaroo rat, and San Joaquin kit fox dens. The results of these surveys were used to further refine the project footprint. The applicant incorporated additional giant kangaroo rat avoidance areas, blunt-nosed leopard lizard avoidance buffers, and a San Joaquin kit fox travel/dispersal corridor.

San Benito County prepared a supplemental EIR to evaluate changes to the project since the EIR was certified in 2010. It included the changes described above and the actions needed to be undertaken by PG&E to interconnect the project to the PG&E Moss Landing-Panoche 230 kV transmission line. San Benito County certified the final supplemental EIR and approved the amended conditional use permit for the proposed project as identified in the Draft EIS in April 2015. San Benito County's approved conditional use permit for the proposed project includes applicant-proposed measures and mitigation measures that are legally binding conditions of approval. This EIS incorporates those measures as part of the ~~proposed project~~applicant's preferred alternative evaluated in **Chapter 3**; the measures are detailed in **Appendix C**.

In April 2010, the applicant submitted to the USACE, San Francisco District a preconstruction notification for authorizing the ~~proposed~~ project as proposed at that time under Nationwide Permit 12, Utility Line Activities. The applicant submitted an updated application in August 2010. The USACE, San Francisco District made a preliminary determination that the ~~proposed~~ project as proposed may have more than minimal adverse impacts on the environment under the 2007 Nationwide Permit Program and determined that an individual permit would be required.

The USACE, San Francisco District published a public notice on the updated application in December 2010; this update revised the applicant's proposed project to conform to the project permitted by San Benito County in its conditional use permitting process. This public notice described the ~~proposed~~ project as proposed at that time, state and local approvals, compliance with various federal laws and Section 404(b)(1) of the Clean Water Act guidelines, and solicited comments on the ~~proposed~~ project as proposed (US Army Corps of Engineers 2010).

Due to the potential for significant adverse impacts on aesthetics and federally listed threatened and endangered species and potential significant beneficial economic impacts, the San Francisco District determined that an EIS should be prepared to analyze the potential impacts.

In May 2015, in accordance with 33 CFR, Part 325.8(b)(4), the permit decision for the ~~proposed project~~project as proposed was elevated from the USACE, San Francisco District to the USACE, South Pacific Division, with technical regulatory support provided by the USACE, Sacramento District.

Since submitting the permit applications in 2010, the applicant has revised the application to further avoid and minimize impacts on waters of the U.S. This would be done by reducing the number of proposed road crossings and by eliminating impacts associated with burying utility lines in trenches. In addition, the applicant has submitted a wetland mitigation and monitoring plan and is proposing to compensate for impacts on ~~0.122~~0.121 acre (approximately 3,504 linear feet), as described at the end of **Section 1.2**, above.

Additional changes to the applicant's proposed project have been made since the Draft EIS was published. These changes are the result of further consultation with or the issuance of permits by other regulatory agencies, all of which have reduced project impacts. First, the number of bridge crossings has been reduced from two crossings to one crossing as the result of further consultation with the Hollister Fire Department. This change avoids previously analyzed impacts to Panoche Creek and slightly reduces overall project impacts to waters of the U.S. and other aquatic resources. Second, through additional consultation with the CDFW, the results of which are reflected in the Incidental Take Permit issued by CDFW on November 20, 2015, additional areas of giant kangaroo habitat will be avoided and the overall project footprint has been reduced from 2,506 acres to 2,154 acres. This reduction includes converting permanent impact areas into an additional giant kangaroo rat avoidance corridor on the east side of the project equivalent to approximately 95 acres (East Side GKR Corridor). The East Side GKR Corridor includes a north arm that is approximately 700 feet wide by 2,200 feet long and a south arm that is approximately 550 feet wide by 2,200 feet long. The two arms are connected by a north-south corridor that is approximately 600 feet wide by 2,100 feet along the east side of the project footprint. An additional north-south giant kangaroo rat corridor has been located along Little Panoche Road through the northern solar array block. This corridor is 200 feet wide from the centerline of the road, or approximately 80 feet from the edge of pavement on the east and west sides, equivalent to approximately 13 acres. **Figure 1-2** illustrates the changes in the applicant's proposed project footprint and on-site conservation lands that have occurred since the Draft EIS was published. The revised project as described is identified as the applicant's preferred alternative in this Final EIS.

In addition to giant kangaroo rat avoidance corridors, several areas of proposed temporary impacts would be avoided and converted into additional conservation lands. These include areas in the vicinity of known and historic California tiger salamander ponds in the northwestern portion of the project site. Overall, the project footprint was reduced by 352 acres from the project analyzed in the Draft EIS. An additional approximately 93 acres of land within the two temporary laydown yards would also be converted to conservation land after construction is complete, yielding a total of approximately 442 acres of additional conservation land beyond what was identified in the Draft EIS.

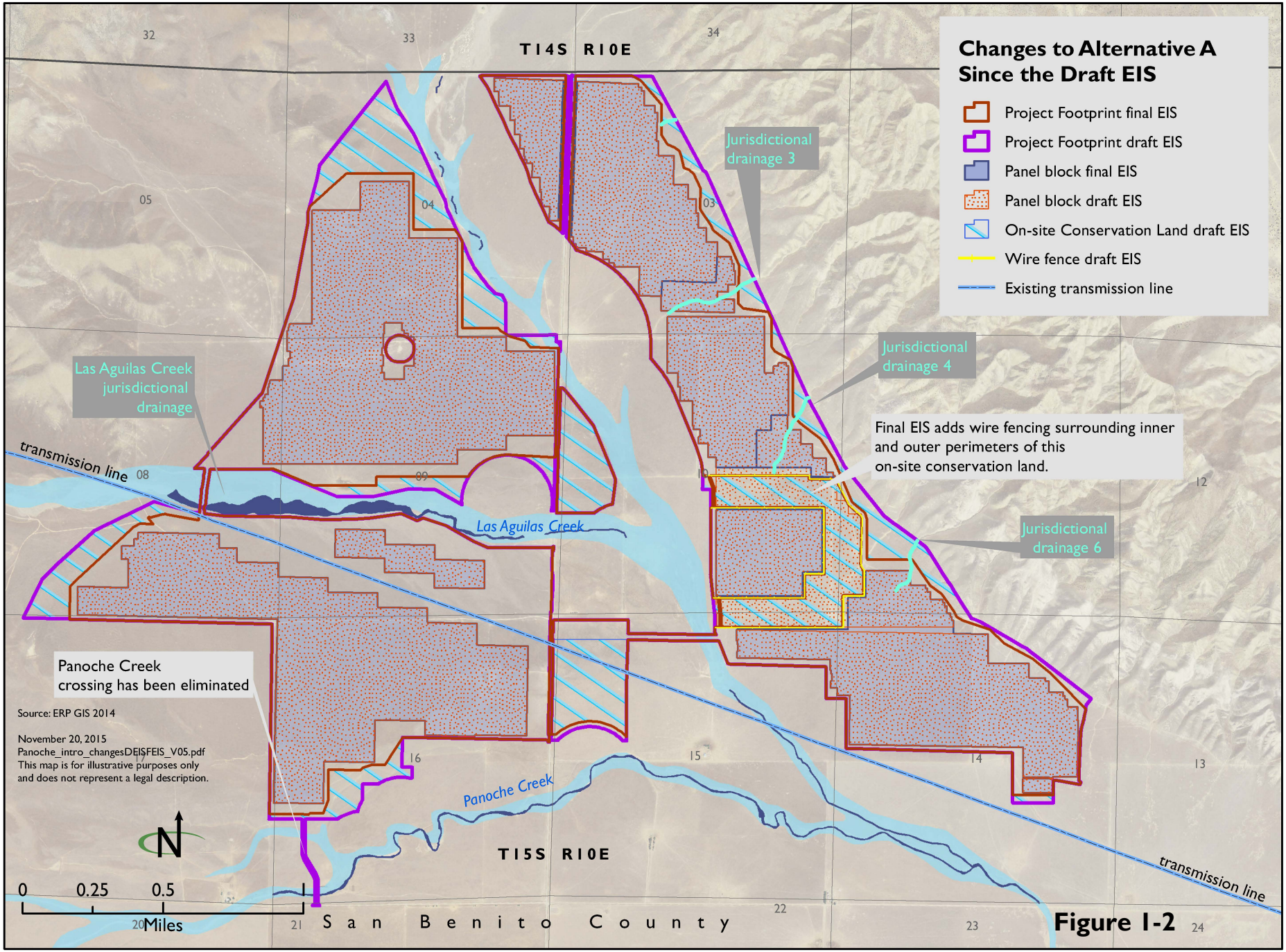

Changes to Alternative A Since the Draft EIS
Project Footprint final EIS
Project Footprint draft EIS
Panel block final EIS
Panel block draft EIS
On-site Conservation Land draft EIS
Wire fence draft EIS
Existing transmission line
T14S R10E
T15S R10E
Jurisdictional drainage 3
Jurisdictional drainage 4
Jurisdictional drainage 6
Las Aguilas Creek jurisdictional drainage
Final EIS adds wire fencing surrounding inner and outer perimeters of this on-site conservation land.
Panoche Creek crossing has been eliminated
Las Aguilas Creek
Panoche Creek
transmission line
transmission line
Source: ERP GIS 2014
November 20, 2015
Panoche_intro_changesDEISFEIS_V05.pdf
This map is for illustrative purposes only and does not represent a legal description.
N
0 0.25 0.5 1
Miles
San Benito County

Figure 1-2

1.4 PROJECT PURPOSE AND NEED

In accordance with NEPA, an EIS must briefly specify the underlying purpose and need to which the agency is responding (40 CFR, Part 1502.13). When considered together, the purpose and need establish the basic parameters for identifying the reasonable range of alternatives to be considered in an EIS. Under the USACE regulatory program, if the scope of analysis for the NEPA document covers only the proposed specific activity requiring a Department of the Army permit, then the underlying purpose and need for that activity should be stated. However, if the scope of analysis covers a more extensive project, only part of which requires a Department of the Army permit, then the underlying purpose and need of the entire project should be stated (33 CFR, Part 325, Appendix B[9][b][4]).

The applicant submitted a Department of the Army permit application to the USACE to construct the solar PV energy generating facility in the Panoche Valley region of San Benito County. The power generated by this project would assist the State of California and its retail suppliers of electricity to meet the mandatory Renewable Portfolio Standard (RPS) under California law. This law requires electricity providers to procure 33 percent of their electricity from renewable energy sources by 2020 (2011 Senate Bill SBX 1-2). The project would also assist the state to meet targeted reductions in greenhouse gas emissions to 1990 levels by 2020 (California Global Warming Solutions Act of 2006 [Assembly Bill 32]).

The applicant executed a power purchase agreement with Southern California Edison in August 2014. Under this agreement, the applicant is obligated to deliver 247 MW_{AC} of power annually for 20 years, beginning in 2019.

The USACE takes an applicant's purpose and need statement into account when defining the purpose and need of a proposed action under NEPA; however, in all cases it exercises independent judgment in defining the purpose and need.

As part of the requirements of the US Environmental Protection Agency's (EPA's) Section 404(b)(1) Guidelines for the Specification of Disposal Sites for Dredged or Fill Material, the USACE may identify a basic project purpose and an overall project purpose in order to identify practicable alternatives to a proposed action. The basic project purpose is identified in those cases where a proposed project would result in a discharge into a special aquatic site (i.e., sanctuaries and refuges, wetlands, mudflats, vegetated shallows, coral reefs, and riffle and pool complexes). Because the ~~proposed project~~applicant's preferred alternative would not discharge into a special aquatic site, the basic project purpose has not been identified.

The USACE has determined the purpose of the ~~proposed project~~applicant's preferred alternative under NEPA and the overall project purpose under the Section 404(b)(1) Guidelines of the Clean Water Act to be as follows:

> The overall project purpose is to construct an approximately 247 MW_{AC} solar PV energy generating facility and associated transmission and support facilities in the west-central portion of California's Central Valley (generally encompassing portions of San Benito, Merced, Madera, Fresno, and Kings Counties).

The USACE uses the overall project purpose to define alternatives for evaluation in an EIS and to determine if the applicant's ~~proposed project~~preferred alternative is the least environmentally damaging practicable alternative (LEDPA) under the Section 404(b)(1) Guidelines. According to USACE guidance in its 2009 Standard Operating Procedures, "The overall project purpose should be specific enough to define the applicant's needs, but not so restrictive as to constrain the range of alternatives that must be considered under the Section 404(b)(1) Guidelines."

1.5 SCOPE AND FOCUS OF THIS ENVIRONMENTAL IMPACT STATEMENT

This EIS presents information on the potential impacts associated with issuing a permit to construct the ~~proposed project~~applicant's preferred alternative. The USACE's decision on whether to issue a Clean Water Act Section 404 permit requires compliance with NEPA and the interpretive guidelines established by CEQ and the USACE's NEPA implementing procedures.

This EIS achieves the following:

- Describes the affected environment relevant to potential impacts of the applicant's preferred alternative~~proposed project~~ and alternatives
- Analyzes potential significant environmental impacts from the applicant's preferred alternative ~~proposed project~~ and alternatives
- Identifies ways that environmental impacts could be avoided, reduced, or mitigated
- Identifies and characterizes cumulative impacts that could result from the applicant's preferred alternative~~proposed project~~ and alternatives in relation to other past, present, or reasonably foreseeable future actions
- Provides the USACE with environmental information for use in decision-making to protect, preserve, and enhance the human environment and natural ecosystems
- Discloses to the public the environmental information and analyses that the USACE will base its decisions on

The area of analysis of the EIS is the following:

- Lands within the project footprint

- Valley Floor, Silver Creek, and Valadeao Ranch Conservation Lands
- On-site Conservation Lands and Additional Conservation Lands
- Areas that would be affected by network upgrades along the PG&E transmission line and at microwave tower sites at the existing Helm Substation and on Panoche and Call Mountains in order to interconnect the Panoche Valley Solar Facility to the electrical grid

The focus of the environmental analysis for each alternative includes the direct and indirect effects of constructing a solar facility. This includes short-term effects from construction activities and long-term effects from the presence of a solar facility. It also includes the effects from operational and maintenance activities associated with operating the facility, which are considered an indirect effect of the construction of the solar facility. Impacts associated with operational and maintenance activities are included within the NEPA scope of analysis, as they are indirect effects caused by the construction of a solar facility and may affect federally listed threatened and/or endangered species. However, these activities, because they would not result in the discharge of dredged and/or fill material into waters of the U.S., do not require a Section 404 permit and are not within USACE jurisdiction. Decommissioning of the proposed solar facility is not included in the scope of analysis because activities that would occur at the end of the 30-year project under decommissioning are speculative, given potential changes in technology over that time. It is also possible that rather than being decommissioned, the proposed facility could be repowered. The decision to not include decommissioning or repowering within the scope of analysis does not preclude the potential need to evaluate decommissioning or possible repowering under NEPA in the future, if these activities are subject to federal control and responsibility.

1.6 LEAD AND COOPERATING AGENCIES

The USACE is the federal lead agency under NEPA. It has the principal responsibility for issuing Department of the Army Clean Water Act Section 404 permits and ensuring that the requirements of NEPA have been met. As explained in **Section 1.3**, the USACE, South Pacific Division will make the decision on whether to issue a permit for the ~~proposed project~~applicant's preferred alternative, with technical regulatory support provided by the USACE, Sacramento District.

The project applicant is requesting a permit and related approvals to accommodate proposed development on lands it controls. The ~~proposed action~~ applicant's preferred alternative represents a federal action because it would require permits and authorizations required by federal law.

Under NEPA, a cooperating agency is any federal agency other than the lead agency that has jurisdiction over or special expertise with respect to any environmental effect from an action requiring an EIS. Cooperating agencies are encouraged to participate in the NEPA process of the lead agency, to review the

NEPA document of the lead agency, and to use the document when making decisions on the project. The USFWS, which has responsibility for issuing a biological opinion on the applicant's proposed project under Section 7 of the Endangered Species Act, is a cooperating agency for this EIS.

1.7 PERMITS, AUTHORIZATIONS, AND PLANS

Table 1-1~~Table 1-1~~Table 1-1 shows the permits and authorizations that the applicant will be required to obtain before constructing and operating the applicant's preferred alternative~~proposed project~~. **Table 1-2~~Table 1-2~~Table 1-2** describes the plans that will be prepared or have been prepared for the applicant's preferred alternative~~proposed project~~.

1.8 AGENCY AND PUBLIC COORDINATION AND SCOPING PROCESS

Public participation is an important part of NEPA and the Section 404 permitting process. Federal public participation activities conducted in support of this EIS are described below.

1.8.1 Scoping

Project scoping identifies issues of concern early in the EIS process. NEPA requires that the lead agency invite affected federal, state, and local agencies, any affected Native American tribes, and other interested organizations and persons to participate in the scoping process. Scoping provides the public with the opportunity to identify environmental issues, concerns, and opportunities to be analyzed in the EIS.

The USACE published a notice of intent (NOI) to prepare the EIS in the *Federal Register* on July 19, 2012 (*Fed. Reg*. Vol. 77, No. 139, p. 42488), initiating a 30-day scoping period; this period was extended by nearly 20 days to end on September 7, 2012. The NOI was published in the *Hollister Free Lance* on July 31, 2012, and on August 3, 2012. Also, it was mailed to federal, state, and local agencies, organizations, and individuals known to have an interest in the project. The NOI invited the public to provide information on environmental impacts that could occur as a result of the ~~proposed~~ project as proposed at that time. Copies of these materials are in **Appendix A**.

Public scoping meetings were held on August 21, 2012, at the Panoche School in Paicines, California, and on August 22, 2012, at the Veterans Memorial Building in Hollister, California. The meetings began with an open house that served as an informal question and answer session, followed by a formal presentation and oral comments. Eleven people attended the scoping meeting in Paicines, and six entered comments into the public record. Thirty people attended the scoping meeting in Hollister, and nine entered comments into the public record. The formal presentations and oral comments were recorded by a court reporter to accurately capture the information presented at the meetings.

Table 1-1
Potential Permits and Authorizations for the Applicant's Preferred Alternative~~Proposed Project~~

Permit or Requirement	Issuing Agency	Description	Status[1]
Federal Permits and Authorizations			
Section 404 Permit	USACE	This permit, issued under the CWA, authorizes the placement of dredge or fill material into jurisdictional waters and wetlands of the U.S.	Revised application submitted ~~August~~ December 2015
Section 7 Consultation Process and Endangered/ Threatened Species Take Permit	USFWS	This is an authorization for activities that may take a species listed as threatened or endangered under the federal Endangered Species Act. This authorization would be obtained through Section 7 consultation, which would require submitting a biological assessment before the USFWS would issue a biological opinion with incidental take statement.	Biological Opinion issued by USFWS October 5, 2015~~Biological assessment submitted; accepted by the USFWS as complete on November 18, 2014~~
Section 106 Consultation	State Historic Preservation Office (SHPO)	Section 106 of the National Historic Preservation Act requires federal agencies to consult with the SHPO on federal actions that may affect historic resources.	SHPO concurrence received October 12, 2015~~Section 106 consultation will begin in 2015~~
Right-of-way (SF-299) Permit	Bureau of Land Management (BLM)	The BLM will issue the right-of-way permit to PG&E for its work on the transmission line.	SF-299 application submitted June 2015; cost reimbursement agreement in review with PG&E; BLM approval anticipated ~~October 2015~~once the Final EIS is ~~certified~~completed
State Permits and Authorizations			
Lake and Streambed Alteration Agreement	CDFW	This permit authorizes fill, diversion, obstruction, disposal, and other activities in or from the bed, channel, or bank of a state watercourse or lake.	Revised application submitted August 2015

Table 1-1
Potential Permits and Authorizations for the Applicant's Preferred Alternative~~Proposed Project~~

Permit or Requirement	Issuing Agency	Description	Status[1]
Section 401 Certification	Central ~~Coast~~ Valley Regional Water Quality Control Board (RWQCB)	This certification is triggered by, and must be received for, a USACE Section 404 permit.	~~Revised application submitted December 2014; public notice issued May 20, 2015; hearing occurred July 31, 2015;~~ 401 certification issued October 15, 2015~~anticipated September 2015~~
Waste Discharge Requirements Order	Central ~~Coast~~ Valley ~~Regional Water Quality Control Board~~ (RWQCB~~)~~	This is required to discharge fill to Waters of the State that are exempt, in accordance with Subsection 20090 of Title 27, and not subject to the Federal Water Pollution Control Act.	Order approved by the RWQCB on July 31, 2015
Incidental Take Permit	CDFW	This authorizes activities that may take any threatened or endangered species listed under the California Endangered Species Act.	Revised application submitted March 2015; deemed complete May 15, 2015; permit No. 2081-2014-035-04 issued November 20, 2015~~anticipated fall 2015~~
Construction General Stormwater Permit	Administered by the Central ~~Coast~~ Valley RWQCB	This is a general stormwater permit that will be required for construction at the site.	Submitted to San Benito County on September 16, 2015. WDID: 5F35C374217; Application ID: 464070; NOI approved and active in SMARTS: September 30, 2015~~Anticipated September 2015~~
Local Permits and Authorizations			
Conditional Use Permit	County of San Benito	This discretionary permit allows a specific land use.	Approved October 2010; amended April 2015
CEQA authorization	County of San Benito	This is an environmental review for discretionary permits required under CEQA.	Final EIR released in September 2010; Final Supplemental EIR released April 2015

[1]Most recent submission date

Table 1-2
Potential Plans Required for the Applicant's Preferred Alternative~~Proposed Project~~

Plan	Requiring Regulation or Document	Status
Avian conservation strategy	Biological opinion, EIR	Approved by San Benito County on September 29, 2015~~Draft completed February 2015~~
Worker environmental education plan	EIR (MM BR-G.1)	Approved by San Benito County on September 29, 2015~~Not yet developed; estimated completion September 2015~~
Weed control plan	EIR (MM BR-1.1)	Approved by San Benito County on September 18, 2015~~Draft completed August 2014~~
Grazing plan	EIR (MM BR-1.2)	Submitted Draft Plan to CDFW on June 16, 2015; USFWS/USACE on August 25, 2015; and San Benito County on September 30, 2015~~Developed as part of the habitat management plan; completed June 2015~~
Lighting mitigation plan	EIR (MM AE-1.1)	Submitted to San Benito County on September 30, 2015; will be approved prior to installation of permanent lighting~~Not yet developed; estimated completion September 2015~~
Surface treatment plan	EIR (MM AE-3.1)	Approved by San Benito County on September 18, 2015~~Draft completed August 2015~~
Traffic control plan and traffic safety plan	EIR (MM TR-1.1)	Approved by San Benito County on August 27, 2015. Submitted to Fresno County on September 10, 2015. Submitted to Caltrans/Hollister Sheriff/California Highway Patrol on October 9, 2015~~Draft plan submitted to San Benito County February 2015~~
Groundwater monitoring and reporting plan	EIR (MM WR-1.1)	Draft plan submitted to San Benito County March 2015
Aquifer testing and well interference analysis	EIR (MM WR-1.2)	Draft plan submitted to San Benito County March 2015; approved June 10, 2015
Stormwater pollution prevention plan	State and RWQCB	Submitted to San Benito County on September 16, 2015. WDID: 5F35C374217; Application ID: 464070; NOI approved and active in SMARTS: September 30, 2015~~Draft completed August 2015~~
Spill prevention, control, and countermeasure plan	California Health and Safety Code	Not yet developed; estimated completion during construction before 1,320 gallons of oil are brought on-site

Table 1-2
Potential Plans Required for the Applicant's Preferred Alternative~~Proposed Project~~

Plan	Requiring Regulation or Document	Status
Hazardous materials business plan	California Health and Safety Code	Not yet developed; estimated completion during construction before hazardous materials are brought on-site
Eagle conservation plan	Bald and Golden Eagle Treaty Act, California Endangered Species Act (CESA), Section 2081	Approved by San Benito County on September 24, 2015~~Draft completed February 2015~~
Wetland mitigation and monitoring plan (for waters)	Biological opinion, EIR (MM BR-G.6)	Draft plan submitted to CDFW, ~~RWQCB, and USACE June 2015; comments received from USACE July 2015;~~ revised plan incorporating USACE and RWQCB comments submitted October 2015~~submitted August 2015~~
Habitat restoration and revegetation plan	Biological opinion, EIR (MM BR-G.3)	Submitted to San Benito County on September 28, 2015~~Draft completed August 2015~~
Habitat management plan	Biological opinion, EIR (MM BR-G.6)	Submitted to CDFW on June 16, 2015; USFWS/USACE on August 25, 2015; and San Benito County on September 30, 2015~~Draft plan submitted to CDFW June 2015~~
Paleontological monitoring and recovery plan	EIR (MM PA-1.1)	Submitted to County on September 11, 2015~~Not yet developed; estimated completion September 2015~~
Antelope squirrel relocation plan	CESA, Section 2081	Draft plan submitted to CDFW and San Benito County April 2014; approved with final Biological Opinion on October 5, 2015
Giant kangaroo rat relocation plan	Biological opinion, CESA, Section 2081	Draft plan April 2014; supplemental information provided June 2015
Fire protection and prevention plan	Cal Fire Code, EIR (MM-C.9-19)	Approved by Hollister Fire Department on October 1, 2015~~Not yet developed; estimated completion September 2015~~
CTS avoidance and minimization plan	Biological opinion, EIR, California Endangered Species Act Section 2081	Draft plan completed June 2015; approved with final Biological Opinion on October 5, 2015
San Joaquin kit fox conservation measures	Biological opinion, EIR, California Endangered Species Act Section 2081	Draft plan April 2014; approved with final Biological Opinion on October 5, 2015
Blunt-nosed leopard lizard protection plan	Biological opinion, EIR	Draft plan April 2014; approved with final Biological Opinion on October 5, 2015

MM = Mitigation measure from EIR (San Benito County 2010) and Supplemental EIR (San Benito County 2015)

The scoping period ended on September 7, 2012. Twenty written comment letters were submitted by the following agencies, tribes, and organizations and by 12 individuals; in all, 21 individuals commented with either written or oral comments:

- US Environmental Protection Agency
- Valentin Lopez, Amah Mutsun Tribal Band of Costanoan/Ohlone Indians
- Luis Alejo, Assembly Member, 28th District
- California Audubon Society
- Center for Biological Diversity
- Defenders of Wildlife
- Santa Clara Valley Audubon Society
- Citizens Committee to Complete the Refuge
- Sierra Club, Loma Prieta Chapter

The issues raised in the oral and written comments are presented in **Table 1-3**; approximately a third of the comments focused on biological resource issues. The comments received during scoping were similar in substance and nature to those received during the USACE public noticing periods in 2010 and 2011.

Table 1-3
Summary of Scoping Issues

Issue	Summary of Comments by Issue
Biological resources	Most of the scoping comments focused on biological issues, especially impacts on sensitive and protected species, migratory birds, and grassland ecosystems. Commenters requested a full accounting of sensitive species, a thorough analysis of project and cumulative impacts, a description of measures to avoid, minimize, and mitigate project impacts, and provisions of mitigation, monitoring, and translocation plans. The EPA and other commenters requested an analysis of the potential for habitat fragmentation, identification and analysis of compensatory mitigation proposals, and consultation with the USFWS and CDFW to incorporate lessons learned from other renewable projects and recent guidance to avoid and minimize adverse effects on sensitive species. Commenters also requested that the EIS analyze impacts from shading and alteration of rainfall on vegetation and species due to panel installation and impacts on species from pile installation and construction noise. The EPA also asked that the EIS include an invasive weed management plan. Several environmental conservation organizations identified the Panoche Valley as an important bird area, and some expressed concern that the quality and quantity of mitigation lands would not compensate for the loss of core habitat.

Table 1-3
Summary of Scoping Issues

Issue	Summary of Comments by Issue
Water resources	The EPA and other commenters requested an estimation of the quantity of water required during construction and operation, the proposed source of the water, a description of water rights permitting and the status of water rights in the basin, the potential impact on other water users in the area, and the potential impacts on surface and groundwater. The EPA also requested an analysis of technologies that can be used to minimize or recycle water and whether it would be feasible to use other sources of water. The agency requested that the impacts on waters of the U.S. be identified and floodplains and stormwater flow be analyzed. Some commenters expressed concern over potential contaminants leaching from solar facility equipment.
Alternatives	The EPA indicated that the EIS should include a robust discussion of alternatives, including alternative sites, capacities, and technologies, and that an environmentally preferable alternative be identified. It requested that the EIS provide a clear discussion of the reasons for eliminating alternatives not discussed in detail, how each alternative was developed, how it addresses each project objective, and how it will be implemented. Both local commenters and nonprofit organizations asked to see alternative locations for the site, including in the Westlands Competitive Renewable Energy Zone; alternatives to utility-scale solar, including rooftop solar and smaller facilities located closer to users; and more efficient solar panels. Some commenters requested an alternative that avoided all stream crossings.
Socioeconomics	A number of individuals had concerns over the impact the facility would have on the value of their property, local businesses, tourism, Panoche schoolchildren, and the community. One commenter expressed concerns about housing impacts during construction due to the number of temporary workers. Some commenters expressed support of the project for the potential economic benefits it could have on the regional economy.
Public health and safety/hazardous materials and waste	The EPA requested that the EIS identify hazardous waste types and volumes, applicability of state and federal hazardous waste requirements, and mitigations that include minimizing generation of hazardous waste. Commenters expressed concern about naturally occurring arsenic, pesticide residue, and potential for valley fever from construction-generated dust. Some expressed concern over potential soil and water contamination from the project. Commenters requested that the EIS address impacts on emergency service providers and waste disposal at the end of solar panel life.
Noise	Individual commenters expressed concerns over the levels and duration of construction-related noise, including that from post installation and traffic, the change in background noise levels in a rural environment, impacts on Panoche schoolchildren, and impacts on livestock and domestic and wild animals. One commenter requested that the EIS evaluate operational noise levels.

Table 1-3
Summary of Scoping Issues

Issue	Summary of Comments by Issue
Air quality	The EPA requested that the EIS estimate construction and operational air emissions, identify measures to minimize emissions, and include a draft construction emissions mitigation plan. A number of individual commenters expressed concerns over construction-related impacts on air quality, primarily fugitive dust impacts from soil disturbance.
Cumulative impacts	The EPA requested an in-depth cumulative impacts analysis, including identification of cumulative projects, geographic area, and temporal boundaries; current conditions, trends, and future conditions; parties responsible for minimizing impacts; and opportunities to minimize impacts. The agency also requested that the EIS evaluate impacts from the additional power supply and cumulative impacts associated with the transmission needs of other reasonably foreseeable projects. Commenters requested that the EIS analyze cumulative impacts on sensitive species from solar development in the region. Some commenters requested the EIS analyze cumulative impacts on water supplies, on waters of the U.S., and on species that depend on those waters.
Project description and design	Several commenters requested details on the applicant's proposed project, made suggestions about the design and implementation of the project, or provided opinions on solar technology. Commenters requested that information on interconnection and transmission be included in the EIS, including requirements for upgrades. One commenter requested an accounting of acreage required for roads and conduit. Some commenters suggested the use of a more efficient photovoltaic panel to reduce the project footprint.
Fire	Commenters requested that the EIS analyze the potential fire risks from the proposed project and measures that would be taken to minimize this risk. Individuals expressed concern that the project would increase the risk of fire and expressed concern over firefighter response times.
Cultural resources	The EPA requested that the EIS describe the process and outcome of government-to-government consultation with tribal governments, address the existence of sacred sites in the area, and provide a summary of coordination with tribes and the state historic preservation office (SHPO), including identification of sites eligible for listing on the National Register of Historic Places (NRHP) and development of a cultural resource management plan. The Amah Mutsun Tribal Band of Costanoan/Ohlone Indians expressed concerns that the proposed project would negatively affect sacred lands and damage resources with ecological and cultural significance. The tribe expressed specific concerns on impacts on subsurface resources and requested that the applicant hire a tribal representative to monitor all ground disturbance activities, including the removal, repair, or replacement of any solar panel pole.
Traffic and transportation	Individual commenters expressed concerns about construction-related traffic on area roadways, specifically the volume of traffic, hazardous road conditions, and degradation of already poor roads.

Table 1-3
Summary of Scoping Issues

Issue	Summary of Comments by Issue
Purpose and need	The EPA indicated that the EIS should include a strong rationale for the proposed project. The agency, along with several other commenters, requested identification of power purchasers and how the proposed project would help meet California's renewable portfolio standards.
Mitigation (general)	The EPA requested that the EIS adopt a formal adaptive management plan. Other commenters expressed concern that the project lacks a suitable restoration plan. Commenters requested that lands be identified to fully mitigate project impacts and that deferred mitigation not be allowed, that the EIS analyze the impacts of the mitigations imposed by the EIR, and that funding assurances and an enforceable schedule for restoration be included.
Agriculture	Individual commenters expressed concerns about impacts the project would have on local agriculture. They requested that the EIS evaluate impacts on local farmers, impacts from loss of grazing, and impacts on soils from solar panels. One commenter also stated that the valley was not farmed because of property owner choice, not because of irrigation inefficiencies or poor water quality.
Visual resources	Commenters expressed concern over impacts on the visual character of the area in general and impacts from light pollution on the night sky specifically.
Climate change	The EPA requested that the EIS evaluate how water reliability might be affected by climate change, how climate change could influence the project, and how impacts from the project might be exacerbated by climate change. The agency also requested that the EIS quantify and disclose potential benefits on climate change from solar energy and quantify greenhouse gas emissions from different types of generating facilities. One organization requested that the EIS address the effects of global climate change on plants, animals, and habitats in the Panoche Valley as part of the future environmental baseline.
Decommissioning	Individual commenters requested more information and commitment on the decommissioning of the proposed project, including setting aside funds for restoration. One commenter expressed the opinion that the facility not be decommissioned after 30 years but that the technology be updated.
Impact analysis (general)	The EPA requested that the EIS clearly describe the rationale used to determine whether impacts of an alternative are significant. One organization described elements to be considered when evaluating the intensity of an impact.
Land use and recreation	The EPA requested that the EIS describe the current condition of the land, if it is disturbed, and to what extent the land could be used for other purposes. It also requested that the EIS discuss how the project would support or conflict with the objectives of federal, state, tribal, or local land use plans and policies. One commenter requested that the EIS evaluate impacts on recreationists, particularly bird watchers.
Environmental justice	The EPA requested an evaluation of environmental justice populations within the geographic scope of the project and the potential for disproportionate impacts on these populations. One commenter expressed concern over access to information by the Hispanic community.

Table 1-3
Summary of Scoping Issues

Issue	Summary of Comments by Issue
Soils and geology	One commenter requested that the EIS analyze impacts from the project on Class I soils. Another commenter expressed concern over soil erosion.
Section 404 permitting process	Two commenters asked that comments provided to the USACE through the Section 404 public noticing process be included and addressed in the EIS.

1.8.2 Public Review Process

The USACE submitted the *Panoche Valley Solar Facility Draft EIS* to EPA on September 4, 2015. The EPA published the Notice of Availability (NOA) of the Draft EIS in the *Federal Register* on September 11, 2015 (*Fed. Reg.* Vol. 80, No. 176, p. 54786). Additional noticing of the Draft EIS and public meetings included the following:

- The USACE published a public notice on its website notifying the public of the availability of the Draft EIS, announcing the public meetings, and soliciting comments on the proposed project described in the DEIS.
- The USACE mailed a postcard to those on the project mailing list notifying them of the public notice and directing them to the USACE website.
- The USACE emailed the postcard to California, Fresno County, the Panoche Valley Solar Facility project, and Special notification lists directing them to the USACE website.
- The USACE published a notice in the *Hollister Free Lance* on October 2, 2015, informing the public of the availability of the Draft EIS and providing information on the public meetings.

During the public review period, interested parties were invited to comment on the Draft EIS through submission of written and verbal comments. The 45-day public review period for the Draft EIS ran from September 11, 2015 to October 26, 2015.

Two public meetings on the Draft EIS were held in the project area. The first meeting was held on October 6, 2015, at the Veterans Memorial Building in Hollister, California. The second meeting was held on October 7, 2015, at the Panoche Elementary School in Paicines, California. The meetings were conducted in an open house format. Informational posters and a PowerPoint presentation provided information on the proposed project evaluated in the Draft EIS, the NEPA process, and the USACE regulatory program. Representatives from the USACE, the project applicant, and the EIS preparer

were available to answer questions. A court reporter was present at the meetings to enter verbal comments into the public record.

Twenty-eight people attended the public meeting on October 6, 2015, and nineteen individuals entered verbal comments into the public record. Fifteen people attended the public meeting on October 7, 2015, and no attendees entered verbal comments into the public record. No tribal, federal or state agency, or organizational representatives attended or provided comments at either meeting.

Comment letters were submitted by the following agencies and organizations; seven individuals also submitted comments:

- US Environmental Protection Agency
- US Department of the Interior, Office of Environmental Policy and Compliance
- US Department of the Interior, Bureau of Land Management, Central Coast Field Office
- Office of Historic Preservation, Department of Parks and Recreation
- Central Valley Regional Water Quality Control Board
- Aircraft Owners and Pilots Association
- The Nature Conservancy
- Sierra Club, Defenders of Wildlife, and Center for Biological Diversity (joint letter)
- Audubon Society of California

The issues raised in the written comments focused mainly on biological resource issues, while all of the verbal comments supported the project for economic reasons. **Chapter 6** of this Final EIS presents the comment letters, the transcript of the public meeting, and the USACE's responses to the public comments received on the Draft EIS. **Appendix A** contains copies of the public noticing materials on the Draft EIS.

1.9 ORGANIZATION AND AVAILABILITY OF THE EIS

1.9.1 Organization of the EIS

Volume I is the main body of the EIS and contains the cover sheet, table of contents, list of acronyms and abbreviations, and summary, followed by the chapters described below.

- **Chapter 1, Introduction and Statement of Purpose and Need,** describes the project location and gives an overview of the

project. It also provides background and history, the project purpose and need, and the scope of the analysis. It includes an overview of the lead and cooperating agencies, plans and permits required for the proposed project, and the public participation process. It also describes the organization and availability of the EIS.

- **Chapter 2, Project Description and Alternatives,** describes the proposed action, the alternatives development process, the no action alternative, the applicant's preferred alternative~~proposed project~~, alternatives to the applicant's preferred alternative~~proposed project~~, and alternatives eliminated from detailed consideration.
- **Chapter 3, Affected Environment and Environmental Consequences,** describes the existing baseline conditions of the resources that may be affected by implementing the applicant's preferred alternative~~proposed project~~ alternatives. These are aesthetics, agricultural resources, air quality, climate change, biological resources, cultural resources and tribal consultation, geology and soils, hydrology and water quality, land use, landownership, and planning, socioeconomics, environmental justice, noise, public health and safety (including hazardous materials), and traffic and transportation. It also describes the potential direct, indirect, and cumulative impacts associated with the proposed project and alternatives described in **Chapter 2**.
- **Chapter 4, Other Statutory Requirements,** describes the relationship between short-term uses of the environment and long-term productivity, irreversible or irretrievable commitments of resources resulting from the applicant's preferred alternative~~proposed project~~ and other alternatives, and growth-inducing impacts.
- **Chapter 5, Consultation and Coordination,** provides a list of agencies contacted during preparation of this EIS.
- **Chapter 6, Response to Comments,** presents tables of those who provided written and verbal comments, the comment letters, the transcript of the public meeting, and the USACE's responses to the public comments received on the Draft EIS.
- **Chapter ~~6~~7, List of Preparers,** is a brief description of credentials for the preparers of the EIS.
- **Chapter ~~7~~8, References,** lists the sources of information used in preparing the EIS.
- **Chapter ~~8~~9, Glossary,** defines technical terms used in the EIS.
- **Chapter ~~9~~10, Index,** lists by page number the topics that are discussed in the EIS.

Volume II of the EIS contains the following technical appendices:

- **Appendix A, Public ~~Scoping~~Involvement,** contains the NOI, the newspaper and e-mail notices announcing the public scoping meetings, transcripts from the public meetings, and comment letters received during public scoping. It also includes the NOA, public notice, and newspaper and e-mail notices announcing the availability of the Draft EIS and the public meetings.
- **Appendix B, Section 404(b)(1) Alternatives Information,** contains the applicant's 404(b)(1) alternatives information.
- **Appendix C, Applicant Proposed Measures, Mitigation Measures, and PG&E Avoidance and Minimization Measures,** contains the applicant-proposed measures and mitigation measures. The applicant developed these measures during the EIR process, and San Benito County made them conditions of its approval of the conditional use permit for the project. The appendix also includes measures that PG&E committed to in order to avoid or minimize potential impacts while implementing network upgrades.
- **Appendix D, Drainage Crossing Drawings,** contains the preliminary engineering drawings for proposed crossings and grading within the three ephemeral drainages in the eastern portion of the project footprint that are jurisdictional waters of the U.S.
- **Appendix E, PG&E Natural Resources-Related Studies,** is a detailed description and maps of the proposed PG&E primary and secondary telecommunications network upgrade actions and biological, water, and cultural resources surveys and memoranda related to these actions.
- **Appendix F, Biological Resources,** contains biological resource documentation for the proposed project.
- **Appendix G, Agency Consultation,** contains the Section 401 water quality certification from the Central Valley Regional Water Quality Control Board, the California State Historic Preservation Office letter of concurrence, and the USFWS's biological opinion.
- **Appendix H, Plans,** contains applicant-prepared plans required to construct the applicant's preferred alternative~~proposed project~~, as available at the time of release of the Final EIS.
- **Appendix I, CDFW Incidental Take Permit,** contains the Incidental Take Permit issued by CDFW for the applicant's preferred alternative.

1.9.2 Availability of the Draft EIS

The Draft EIS was distributed for public review and comment from September 11, 2015 to October 26, 2015. **Section 1.8.2**, Public Review Process, describes this process in detail.

~~This Draft EIS is being distributed to interested agencies, stakeholder organizations, and individuals. This distribution ensures that interested parties have an opportunity to express their views on the environmental effects of the proposed project or the alternatives and to ensure that decision-makers provide information pertinent to permits and approvals. This document is available for review online at the USACE's website:~~

~~http://www.spk.usace.army.mil/Missions/Regulatory~~

~~Alternatively, a CD containing the EIS will be provided on request. The Draft EIS is being distributed for a public review period that will end 45 days after publication of the Notice of Availability of the EIS in the *Federal Register*. Comments should be sent to the following address:~~

~~Lisa Gibson~~
~~US Army Corps of Engineers, Sacramento District, Regulatory Branch~~
~~1325 J Street, Room 1350~~
~~Sacramento, CA 95814-2922~~
~~E-mail: Lisa.M.Gibson2@usace.army.mil~~

~~If comments are provided via e-mail, they should have the project title in the subject line and should include the commenter's mailing address. Comments should be attached in a Microsoft Word or portable document format (PDF) file. Written comments may be provided at any time during the public review period.~~

1.9.3 Availability of the Final EIS

This Final EIS responds to substantive comments received on the Draft EIS during the public review and comment period. The comment letters and responses to the comments are provided in **Chapter 6** of the Final EIS. These responses indicate where changes have been made to the Final EIS as a result of issues raised or information provided in these comments. Changes in the Final EIS are indicated by underlining for new text and ~~strikethrough~~ for deleted text.

This Final EIS is available for review at the USACE's website:

http://www.spk.usace.army.mil/Missions/Regulatory

Alternatively, a CD containing the Final EIS will be provided on request. The Final EIS is available for public review and comment for 30 days from the date of publication of the US Environmental Protection Agency's NOA in the *Federal Register*. Comments should be sent to the following address:

Lisa Gibson
US Army Corps of Engineers, Sacramento District
Regulatory Division
1325 J Street, Room 1350
Sacramento, CA 95814-2922
E-mail: Lisa.M.Gibson2@usace.army.mil

If comments are provided via email, they should have the project title in the subject line and should include the commenter's mailing address. Comments should be attached in a Microsoft Word or portable document format (PDF) file. Please refer to identification number SPN–2009–00443 in all correspondence.

CHAPTER 2
PROJECT DESCRIPTION AND ALTERNATIVES

2.1 INTRODUCTION

Chapter 2 is a description of the alternatives to the proposed action, including a no action (no build) alternative, a no action (no USACE permit) alternative, one on-site alternative, and one off-site alternative and detailed technical information on the applicant's ~~proposed project~~preferred alternative. It includes a description of the method used to develop and evaluate alternatives to the applicant's preferred alternative~~proposed project~~, the alternatives that were carried forward for detailed analysis, and the alternatives that were considered but rejected.

2.2 PROPOSED ACTION

The USACE's proposed action is to make a decision on the permit application submitted by Panoche Valley Solar, LLC to construct the Panoche Valley Solar Facility in eastern San Benito County, California. The USACE is neither an opponent nor a proponent of the applicant's proposal. Decision options available to the USACE are to issue the permit, issue the permit with modifications or conditions, or deny the permit.

The no action alternative is described in **Section 2.4**. The applicant's ~~proposed project~~preferred alternative is described in **Section 2.5**, Alternative A (Applicant's ~~Proposed Project~~Preferred Alternative). One on-site alternative is described in **Section 2.6**, Alternative B (On-Site Alternative). One off-site alternative is described in **Section 2.7**, Alternative C (Off-site Alternative, Westlands CREZ). Alternatives considered but rejected are described in **Section 2.8**.

2.3 NEPA AND SECTION 404(B)(1) GUIDELINES – REQUIREMENTS FOR EVALUATION OF ALTERNATIVES

NEPA regulations require that an EIS identify and evaluate a range of reasonable alternatives to the proposed project. In addition to meeting the requirements of

NEPA, the evaluation of alternatives in this EIS provides the basis for the USACE to make specific findings under Section 404(b)(1) of the Clean Water Act. USACE NEPA regulations state that a USACE-prepared EIS involving a Department of the Army permit application should be thorough enough to use for both the public interest review and the Section 404(b)(1) Guidelines (40 CFR, Part 230, and 33 CFR, Part 325, Appendix B, Section 9b[5][A]). Thus, the alternatives evaluation for this EIS must comply with both NEPA and Clean Water Act Section 404(b)(1) Guidelines for alternatives analysis.

NEPA and Section 404(b)(1) Guidelines use different criteria for the types of alternatives that should be considered (see **Table 2-1**). NEPA considers "reasonable" alternatives, while the Section 404(b)(1) Guidelines consider "practicable" alternatives.

Table 2-1
Comparison of NEPA and Section 404(b)(1) Guideline

	NEPA	Section 404(b)(1) Guidelines
Standard:	Reasonable	Practicable
Alternatives definition:	Those that are practical or feasible from a technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant (46 *Federal Register* 18026, Question 2a).	Those that are available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes (40 CFR, Part 230.10[a][2]).
Purpose:	An EIS must evaluate reasonable alternatives to the proposed project so that their comparative merits may be considered by agency decision makers and the public (40 CFR, Part 1502.14).	Guidelines prohibit discharges of dredged or fill material into waters of the U.S. if there is a "practicable alternative to the proposed discharge that would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences" (40 CFR, Part 230.10[a]).

Reasonable alternatives are those that are *practical* or *feasible* from a technical and economic standpoint and using common sense, rather than simply being desirable from the standpoint of the applicant (46 *Federal Register* 18026). The range of potential reasonable alternatives may include alternative sites, project configurations, project sizes, and technologies.

An alternative is *practicable* if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall project purpose. If it is an otherwise practicable alternative, an area not presently owned by the applicant, which could reasonably be obtained, used, expanded, or managed in order to fulfill the basic purpose of the proposed activity, may be considered (40 CFR, Part 230.10). The regulations further require that the USACE alternatives analysis identify the least environmentally

damaging practicable alternative (LEDPA). The USACE will make a final determination on the LEDPA in the Record of Decision, following completion of the Section 404(b)(1) alternatives analysis.

The USACE has evaluated alternatives for the proposed project and has identified the alternatives to be evaluated in detail in the EIS. The alternatives analysis conducted by the USACE and described in this report complies with NEPA and with the Clean Water Act Section 404(b)(1) Guidelines.

2.3.1 Summary of Applicant's Section 404(b)(1) Alternatives Information

The applicant submitted a Department of the Army permit application in April 2010 for a 420 MW solar facility. The applicant submitted a revised permit application in December 2010 for a 399 MW solar facility (the project approved by San Benito County in 2010); it was estimated in this application that project impacts would include 427 cubic yards of fill into Panoche and Las Aguilas Creeks.

The applicant submitted alternatives information to the USACE in November 2012 (Power Engineers 2012) and in December 2014 submitted revised alternatives information. This revised information accounted for changes in the proposed project resulting from biological survey information, interconnection requirements by PG&E, and revisions to the jurisdictional determination (Energy Renewal Partners 2014). The applicant's current alternatives information (Energy Renewal Partners 2015b), submitted to the USACE in ~~August~~ December 2015, is included in **Appendix B**. ~~The USACE has not reviewed this updated alternatives information but is providing it for the public to comment on.~~

The applicant's preferred alternative (Alternative A) ~~described in the 2014 alternatives information included~~ includes project impacts of approximately ~~6 cubic yards of cut and 5 cubic yards of fill in Panoche Creek, 10~~ 11 cubic yards of cut ~~and 10 cubic yards of~~and fill in Las Aguilas Creek~~,~~ and 22 cubic yards of cut and 646 cubic yards of fill in three unnamed ephemeral drainages in the eastern portion of the project footprint. Impacts to Panoche Creek were eliminated based on a letter from the Hollister Fire Department dated August 27, 2015, indicating that it would be acceptable to eliminate a bridge over Panoche Creek provided all other emergency access elements be retained and constructed and emergency access areas be established on the site (Hollister Fire Department 2015). This would amount to a total discharge of fill material into ~~0.122~~0.121 acre of waters of the U.S. in the project footprint. This is evaluated as Alternative A (Applicant's ~~Proposed Project~~Preferred Alternative) and is described in **Section 2.5**. In addition, the applicant is proposing 0.096 acre of potential impacts to waters of the U.S. associated with debris removal in two ephemeral drainages on the conservation lands proposed as compensatory mitigation for the proposed loss of waters of the U.S. associated with the applicant's preferred alternative (see **Section 1.2**).

The alternatives information submitted by the applicant included a description of the applicant's proposed project and alternatives in the following categories:

- Off-site alternatives
- On-site alternatives (alternative project configurations, energy output, and drainage crossing technologies)

2.3.2 USACE Evaluation of Alternatives

The alternatives analysis is the heart of the EIS, and agencies must rigorously explore and objectively evaluate all reasonable alternatives. For alternatives that were eliminated from detailed study, agencies must briefly discuss the reasons for their having been eliminated (40 CFR, Part 1502.14). Reasonable alternatives are those that are practical or feasible from a technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant (46 *Federal Register* 18026 [Question 2a]). Reasonable alternatives do not include those that are remote or speculative or that do not achieve the project purpose and need.

The alternatives analysis developed for the EIS considered the following:

- Applicant requirements in siting a utility-scale solar generating facility
- The overall project purpose as defined by USACE
- Criteria related to cost, logistics, and existing technology, including the requirements of the RPS and other federal, state, and local requirements
- Section 404(b)(1) alternatives information submitted by the applicant
- Agency and public input during public noticing of the project by the USACE in 2010 and public scoping for the EIS in 2012
- Input from the USFWS and CDFW on project configurations to reduce impacts on federal and state listed species

The USACE considered alternative on-site configurations, alternative off-site locations, and alternative technologies. The screening criteria used in evaluating potential alternatives for the EIS are described below. Additional screening criteria may be developed by USACE through review of the proposed action and other alternatives for compliance with the Section 404(b)(1) Guidelines.

Alternative On-Site Configurations

Screening Criteria

The following screening criteria were used in developing alternative on-site configurations. Additional screening criteria may be developed by USACE to

determine the least environmentally damaging practicable alternative for compliance with the Section 404(b)(1) Guidelines.

- Overall Project Purpose—If the alternative does not meet the overall project purpose, it will be eliminated. In order to achieve the overall project purpose, the alternative must allow for the development of a 247 MW solar facility.

The justification is as follows:

- 247 MW solar facility—The USACE has determined that it is appropriate to include a minimum 247 MW solar facility in the overall project purpose based on the following:
  - The construction of a solar facility that is less than 247 MW requires the same amount of infrastructure and telecommunications upgrades as a solar facility that is 247 MW or higher; therefore, the construction costs would be the same, but there would be less revenue for the cost of power. This would result in a solar facility that is not commercially viable.
  - Since the original proposal, the applicant has reduced the proposed solar facility from 1,000 MW, to 420 MW, to 399 MW, to the currently proposed 247 MW facility. Based on the substantial reduction in the proposed size of the facility, as well as the avoidance and minimization that has occurred throughout project development, it is not appropriate to require further reductions in the solar facility output.
- Cost—If the alternative would result in unreasonable costs when compared to the costs of a similar project, the alternative will be eliminated.
- Logistics—If the alternative does not provide for emergency ingress and egress to the project site, it will be eliminated. The USACE has determined that maintaining emergency ingress and egress to a proposed solar facility is essential for the health and safety of workers and the residents of the surrounding Panoche Valley.
- Impacts to waters of the U.S.—If the discharge of dredged or fill material into waters of the U.S. would be greater than the proposed project, the alternative will be eliminated. In determining whether the discharge into waters of the U.S. would be greater than the proposed project, the USACE would take into consideration the acreage of discharge and the functions and services provided by the waters. For example, discharges into a greater acreage of previously impacted, low-functioning waters of the U.S. may be appropriate in

order to avoid waters of the U.S. that have not been previously impacted and have higher functions and services.

- Other significant adverse environmental consequences—If an alternative would result in a discharge to waters of the U.S. that is less than the proposed project but would cause other significant adverse environmental consequences (including impacts on federally listed threatened or endangered species, air quality, aesthetics, cultural resources, or other resources), the alternative will be eliminated.

On-Site Alternatives Analysis Discussion

The applicant's proposed project has evolved over time, first through the San Benito County permitting process and CEQA analysis, and then through coordination with the USFWS and the CDFW, which resulted in the currently proposed project (identified as the applicant's preferred alternative (Alternative A) in this Final EIS). A number of project configurations and project output capacities have been studied at the project site. During preparation of this EIS, the USACE continued to evaluate alternative site configurations to further reduce impacts on aquatic resources (fill into waters of the U.S.) and sensitive biological resources.

On-site alternatives evaluated in the applicant's 404(b)(1) alternatives information, alternative configurations and capacities suggested by agencies and the public during project scoping, and alternative configurations investigated with the USFWS and CDFW were evaluated for their ability to meet the project purpose and need. The goal in developing on-site alternative configurations was to reduce impacts likely to be associated with the project as currently proposed, with an emphasis on reducing impacts on aquatic resources (fill into waters of the U.S.).

No alternative configurations were found that further minimized impacts on waters of the U.S. and sensitive biological species, while still providing a project output of 247 MW, as specified in the overall project purpose. One alternative was found that reduced aquatic impacts by avoiding placing fill into ~~Panoche and~~ Las Aguilas Creek~~s~~ (waters of the U.S.). However, this alternative would not provide for adequate emergency access to the site required by the Hollister Fire Chief (Hollister Fire Department 2014, 2015), so it was not evaluated in detail. The alternative configurations analyzed and the reasons they were eliminated from detailed review are described in **Section 2.8**.

In compliance with USACE NEPA regulations (33 CFR, Part 325, Appendix B), one alternative is being evaluated that avoids all impacts to waters of the U.S. Due to the location of waters of the U.S. on the project site, the USACE determined that it is appropriate to analyze a no action alternative that constructs a 247 MW solar facility in a manner that avoids waters of the U.S. and the subsequent need for a Department of the Army permit from the

USACE (No Action (No USACE Permit) Alternative). This would be accomplished by constructing a free span bridge crossings over ~~Panoche and~~ Las Aguilas Creek~~s~~ and avoiding waters of the U.S. on the eastern side of the project site. The USACE will determine whether this alternative is practicable under the Section 404(b)(1) Guidelines and whether it would result in other significant adverse impacts, including impacts on sensitive biological resources. The USACE is also evaluating a second no action alternative that is a "no build" alternative (No Action (No Build) Alternative). More information on the no action alternative is provided in **Section 2.4**.

One on-site alternative crossing technology met the overall project purpose and was carried forward for detailed analysis. This alternative is described in **Section 2.6**.

Alternative Site Locations

Screening Criteria

The following screening criteria were used in developing off-site alternatives for the EIS. Additional screening criteria may be developed by USACE to determine the least environmentally damaging practicable alternative for compliance with the Section 404(b)(1) Guidelines.

- Overall Project Purpose—If the alternative does not meet the overall project purpose, it will be eliminated. In order to achieve the overall project purpose, the alternative must
  - Allow for the development of a 247 MW solar facility
  - Site the development within the west-central portion of the Central Valley (generally including portions of San Benito, Kings, Fresno, Merced, and Madera Counties)

  The justification is as follows:

  - 247 MW solar facility—The USACE has determined that it is appropriate to include a minimum 247 MW solar facility in the overall project purpose based on the following:
    - The construction of a solar facility that is less than 247 MW requires the same amount of infrastructure and telecommunications upgrades as a solar facility that is 247 MW or higher.
    - Since the original proposal, the applicants have reduced the proposed solar facility from 1,000 MW, to 420 MW, to 399 MW, to the currently proposed 247 MW facility. Based on the extensive avoidance and minimization that has occurred throughout project development, it is not appropriate to

require further reductions in the solar facility output.

– Size Requirements—While the exact number of acres needed for a particular solar project would vary depending on the site's slope and aspect and other site-specific constraints, the USACE has determined that a minimum of approximately 2,000 acres is needed to develop a 247 MW solar facility. This determination was based on a review of California solar facilities in various stages of development, provided by the applicant and shown below. Based on this information, an average of 8.85 acres of land per MW is typical of solar facilities in California.

Size Requirement Justification

Solar Facility	Project Proponent	Location	Power Output	Status	Size (acres)	Acres/ MW
Sites Found Through California Energy Commission						
Beacon Solar Energy Project	Beacon Solar LLC	Kern County	250 MW	Approved 8/25/2010	2,012	8.05
Blythe Solar Power Project	NextEra Blythe Energy Center LLC	Riverside County	1,000 MW	Approved 9/15/2010	7,030	7.03
Ivanpah Solar	Solar Partners/ Brightsource	San Bernardino County	370 MW	Approved 9/22/2010	3,400	9.19
Imperial Valley Solar Project	Imperial Valley Solar LLC	Imperial County	709 MW	Approved 9/29/2010	6,500	9.17
Calico Solar Project	Calico Solar LLC/ Tessera Solar	San Bernardino County	663.5 MW	Approved 10/28/2010	8,230	12.40
Palen Solar Project	Nalep Solar Project I, LLC	Riverside County	500 MW	Approved 12/15/2010	5,200	10.40
Ridgecrest Solar Power Project	Solar Millennium	Kern County	250 MW	AFC filed 9/1/2009	1,760	7.04
Sites Found Through Internet Search						
Desert Sunlight Solar Farm	NextEra Energy Resources	Riverside County	550 MW	Operational 2/2015	3,968	7.21
Topaz Solar Farm	MidAmerican Renewables	San Luis Obispo County	550 MW	Operational 2/2013	6,080	11.05
California Valley Solar Ranch	NRG Solar	Carrizo Plain	250 MW	Completed 10/2013	1,966	7.86
Antelope Valley Solar Ranch 1	First Solar, Exelon Corporation	Antelope Valley	266 MW	Construction start 8/2011	2,100	7.89
Mount Signal Solar	TerraForm Power	Imperial County	265.7 MW	Commission date 5/2014	1,980	7.45
McCoy Solar Energy Project	NA	Riverside County	750 MW	Proposed project	7,680	10.24
				Average Acres/MW =		**8.85**

  - Location in the west-central portion of the Central Valley (generally including portions of San Benito, Kings, Fresno, Merced, and Madera Counties)—In accordance with 40 CFR, Part 230.5(b), of the EPA's Section 404(b)(1) Guidelines, the level of documentation required for compliance should be commensurate with the significance and complexity of the discharge activity. The proposed project would discharge dredged and fill material into ~~0.122~~0.121 acre of waters of the U.S. that are subject to the Section 404(b)(1) Guidelines. This would be a relatively minor discharge into waters of the U.S. Because of this, limiting the review area for the solar project to these counties would allow reasonable and practicable alternatives to be evaluated in a way that is not so narrow as to eliminate all alternatives nor so broad as to not allow for a reasonable analysis.

- Cost—If the alternative would result in unreasonable costs when compared to the costs of a similar project, it will be eliminated.
- Logistics—If the alternative does not provide for emergency ingress and egress to the project site, it will be eliminated. The USACE has determined that maintaining emergency ingress and egress to a proposed solar facility is essential for the health and safety of workers and the residents of the surrounding Panoche Valley.
- If the alternative was not within 2,000 feet of an existing 230 kV transmission line, it will be eliminated. The USACE has determined that alternatives that are not within 2,000 feet of an existing 230 kV transmission line are not practicable for the following reasons:
  - Connecting a higher transmission line (e.g., 500 kV) would require installing at least three 500 kV transformers, which would require additional area for construction. Also, these transformers are approximately 40 percent more expensive than 230 kV transformers. In addition, requesting an outage on a 500 kV transmission line creates capacity and reliability concerns for the California electrical grid.
  - Constructing a transmission line longer than 2,000 feet would result in impacts on cost and schedule. The CPUC exempts power lines or substations that have undergone CEQA review as part of a larger project. Under CEQA's Section III.A, a proponent relocating up to 2,000 feet of existing electrical line over 200 kV is exempt from the requirement to obtain a permit to construct or to begin the certification of public convenience and necessity (CPCN) licensing process. The planning and permitting process for a new transmission line exceeding 2,000 feet would take

approximately six to eight years to complete, according to permitting schedule information available on the CPUC website.[1]

- Impacts to waters of the U.S.—If discharging dredged or fill material into waters of the U.S. would be greater than the proposed project, the alternative will be eliminated. In determining this, the USACE takes into consideration the acreage of discharge and the functions and services provided by the waters. For example, discharges into a greater acreage of previously impacted, low-functioning waters of the U.S. may be appropriate in order to avoid waters of the U.S. that have not been previously impacted and have higher functions and services.
- Other significant adverse environmental consequences—If an alternative would result in a discharge to waters of the U.S. that is less than the proposed project, but would cause other significant adverse environmental consequences (such as impacts on federally listed threatened or endangered species, air quality, aesthetics, cultural resources, or other resources), then the alternative will be eliminated.

Off-Site Alternatives Analysis Discussion

To satisfy the Clean Water Act Section 404(b)(1) Guidelines for alternatives analysis and in response to public input during scoping for this EIS, the USACE evaluated potential off-site locations to the applicant's proposed project site.

In developing the overall project purpose and the EIS purpose and need statement, the USACE determined that it was reasonable to geographically define the area of analysis to include lands in the west-central portion of California's Central Valley (generally encompassing portions of San Benito, Merced, Madera, Fresno, and Kings Counties), as described above. Lands in this region have similar solar insolation values and would thus require a similar land area to develop a 247 MW PV generating facility. The USACE approved the off-site alternatives included in the applicant's 404(b)(1) alternatives information and included them in the alternatives analysis in this EIS.

The off-site alternatives in this geographic area were determined to be reasonable if they were of sufficient size to accommodate a 247 MW PV facility (more than 2,000 acres), if they were available for long-term lease or purchase, and if they were near an existing transmission line. This last criterion meant that the off-site alternative would have to have the potential to interconnect to the electric grid without the need for substantial transmission infrastructure upgrades or new transmission lines. In meeting this criterion, the off-site

[1] http://www.cpuc.ca.gov/NR/rdonlyres/6F25BFDD-3F71-479C-B02A-4542DF6C9BF5/0/Transmission_Permitting_Slides.pptx

alternative could contribute to the 2020 RPS. This would allow the applicant to meet its obligations under the executed PPA with Southern California Edison to deliver 247 MW by 2019.

All of the sites evaluated had land use designations that would allow the development of utility-scale solar, or it was thought that an appropriate land use designation could be achieved. The availability of the land was determined through an Internet land search and by contacting landowners to determine their interest in selling or leasing their properties for solar development.

Five of the off-site alternatives did not meet the purpose and need and were eliminated from detailed analysis (see **Section 2.8**). The Westlands CREZ Alternative was determined to potentially meet the purpose and need, given the level of information available to the USACE at the time of this analysis; thus, it was carried forward as a reasonable alternative (see **Section 2.7**).

As additional information is submitted, the USACE will determine whether this alternative meets the overall project purpose, whether it is practicable, and whether it would have other significant adverse environmental effects.

Alternative Technologies

During public scoping for the EIS, agencies and the public requested that the USACE evaluate the following alternatives to utility-scale solar:

- Rooftop solar
- Smaller solar facilities located closer to users
- Alternative generating technologies, including different types of solar technologies
- Conservation and efficiency measures that avoid o reduce energy use

None of the alternative technologies evaluated met the purpose and need and therefore were not carried through for analysis (see **Section 2.8**).

2.4 NO ACTION ALTERNATIVE

CEQ regulations implementing NEPA require consideration of a no action alternative (40 CFR 1502.14d). In accordance with USACE NEPA regulations, the no action alternative is one that results in no construction requiring a USACE permit. This could be accomplished either by the applicant modifying the project to eliminate work under the jurisdiction of the USACE or by the USACE denying the permit (33 CFR, Part 325, Appendix B). Therefore, the no action alternative could result in one of two potential scenarios:

- The applicant would not build the proposed project

- The applicant would build the proposed project, but in a manner that did not require a USACE permit

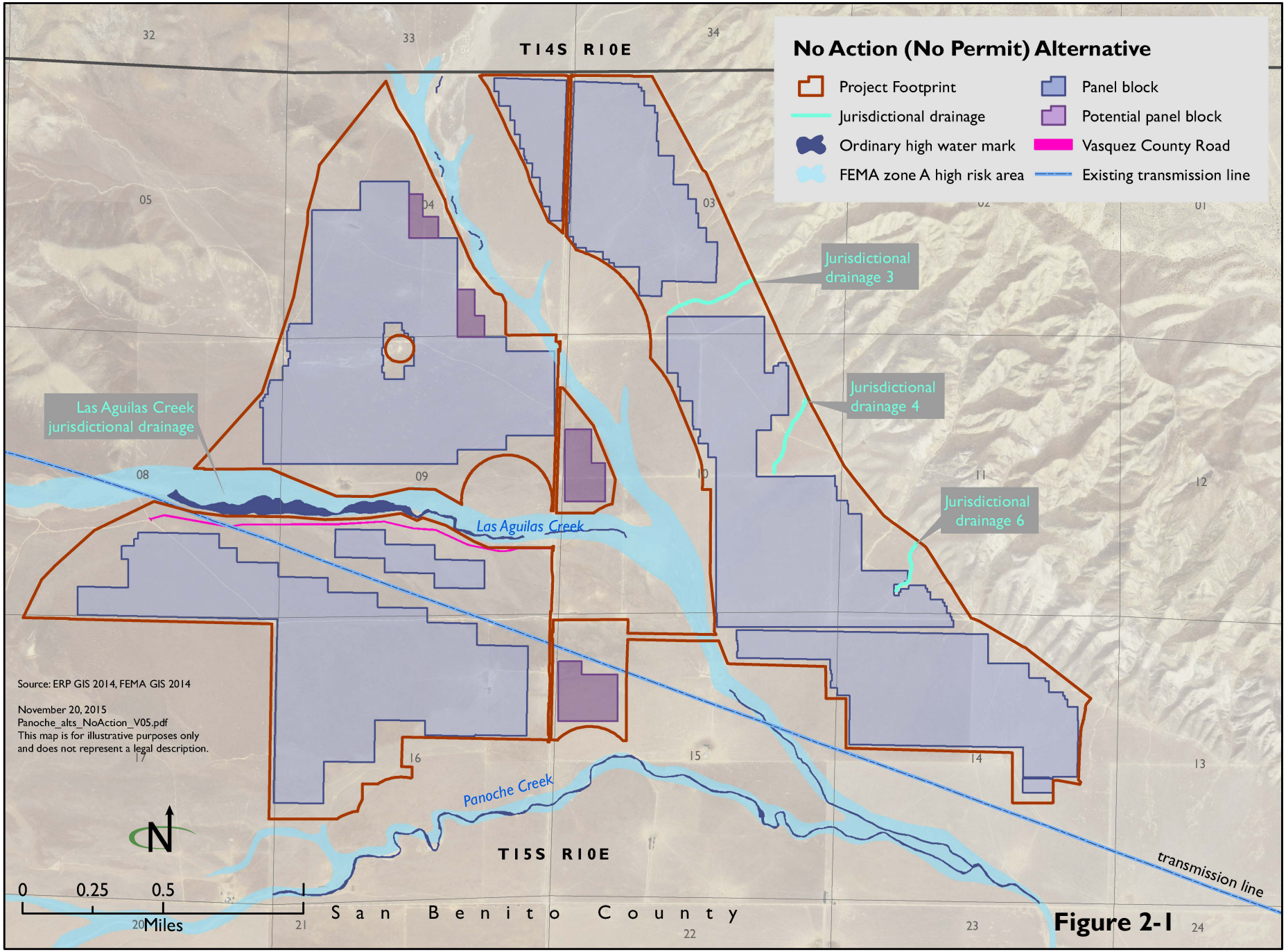
To account for either possible outcome, the USACE has determined that it is appropriate to evaluate both no action scenarios in the EIS. To differentiate between the two no action scenarios, they are referred to as the no action (no build) alternative and the no action (no permit) alternative and are described below.

No Action (No Build) Alternative
Under the no build alternative, a solar facility would not be developed at the proposed project site. Environmental conditions would remain in the status quo, and current land uses would continue.

No Action (No USACE Permit) Alternative
Due to the location of waters of the U.S. on the project site, the USACE determined that it is appropriate to analyze a no permit alternative that constructs a 247 MW solar facility in a manner that avoids waters of the U.S. and the subsequent need for a Department of the Army permit from the USACE. The USACE has not yet made a determination on whether this alternative is practicable under the Section 404(b)(1) Guidelines or whether it would result in other significant adverse impacts, including impacts on sensitive biological resources.

Under the no action (no permit) alternative, Panoche Valley Solar, LLC would construct a 247 MW PV solar generating facility within a 2,506-acre project footprint (see **Figure 2-1**, No Action (No Permit) Alternative and **Figure 2-2**, No Action (No Permit) Alternative Site Layout). This facility would be similar to the applicant's proposed project described in **Section 2.5**, below, except that it would construct a free span bridge crossing~~s~~ over Las Aguilas ~~and Panoche~~ Creek~~s~~ that avoided the discharge of fill into waters of the U.S. at this location but still allowed for adequate emergency access to the site required by the Hollister Fire Chief (Hollister Fire Department 2014, 2015). It would also avoid impacts to the three ephemeral drainages on the eastern side of the project footprint that are waters of the U.S. These changes are described in more detail, below.

Las Aguilas Creek ~~and Panoche Creek~~ Drainage Crossing~~s~~
Under the no action (no permit) alternative, the applicant would construct a free span bridge crossing~~s~~ over Las Aguilas Creek (**Figure 2-3**)~~ and Panoche Creek (**Figure 2-4**)~~. ~~These~~ This bridge crossing~~s~~ would span the stream channel~~s~~ so as to avoid placement of fill into waters of the U.S. The free span bridge~~s~~ would have abutments placed approximately 100 feet from the top of the banks on either side of the ephemeral stream channel~~s~~. The bridge~~s~~ would be approximately 275 feet long, would sit approximately 3 feet above ground level, and would have bridge structures (trusses) above the bridge decking that rise approximately 25 feet above ground level (see **Figure~~s~~ 2-3**~~ and **2-4**~~).


No Action (No Permit) Alternative
Project Footprint
Jurisdictional drainage
Ordinary high water mark
FEMA zone A high risk area
Panel block
Potential panel block
Vasquez County Road
Existing transmission line
T14S R10E
T15S R10E
Jurisdictional drainage 3
Jurisdictional drainage 4
Jurisdictional drainage 6
Las Aguilas Creek jurisdictional drainage
Las Aguilas Creek
Panoche Creek
transmission line
Source: ERP GIS 2014, FEMA GIS 2014
November 20, 2015
Panoche_alts_NoAction_V05.pdf
This map is for illustrative purposes only
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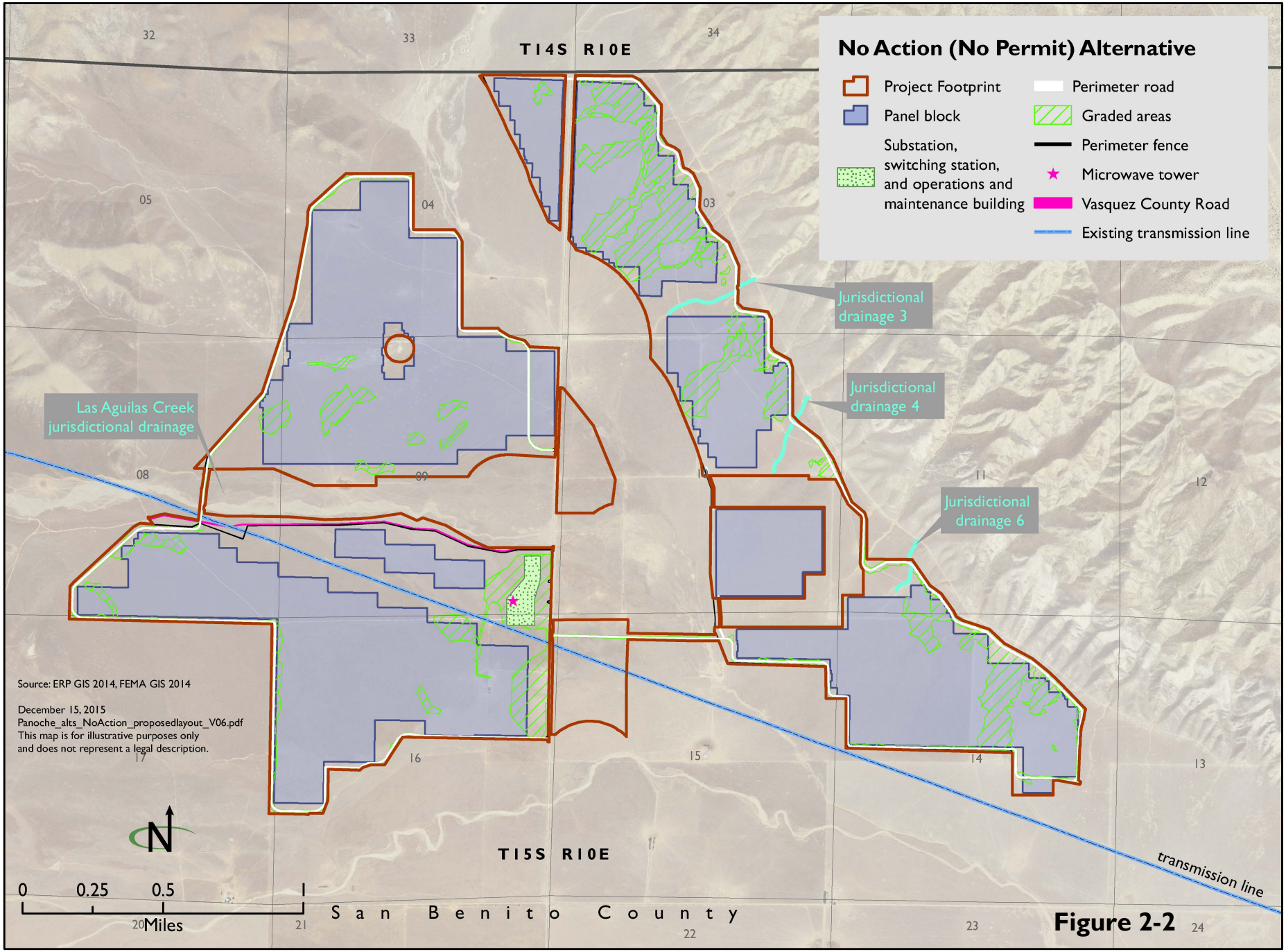
San Benito County

Figure 2-1


No Action (No Permit) Alternative
Project Footprint
Panel block
Substation, switching station, and operations and maintenance building
Perimeter road
Graded areas
Perimeter fence
Microwave tower
Vasquez County Road
Existing transmission line
T14S R10E
T15S R10E
Jurisdictional drainage 3
Jurisdictional drainage 4
Jurisdictional drainage 6
Las Aguilas Creek jurisdictional drainage
transmission line
Source: ERP GIS 2014, FEMA GIS 2014
December 15, 2015
Panoche_alts_NoAction_proposedlayout_V06.pdf
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and does not represent a legal description.
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Figure 2-2

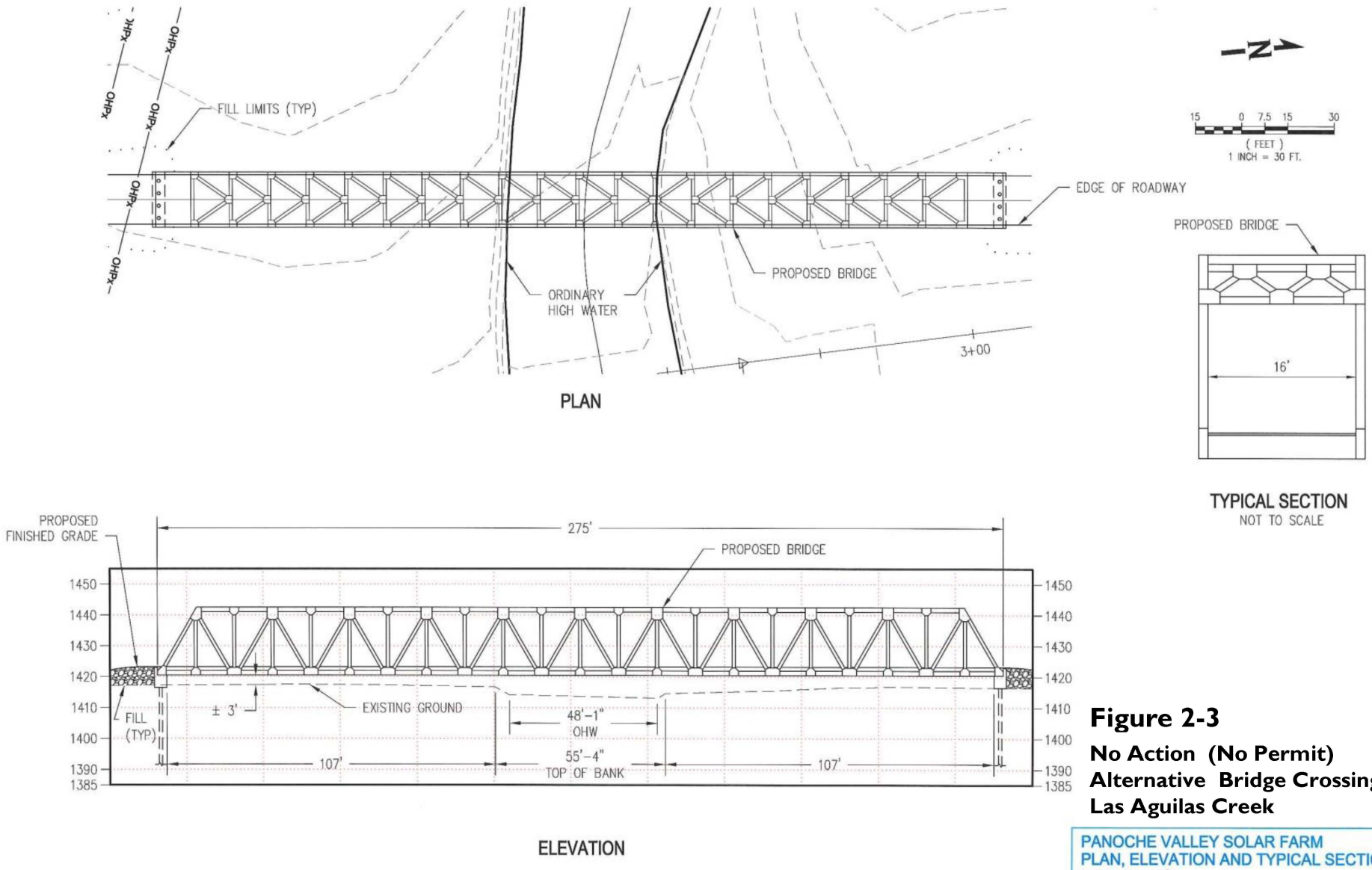


Figure 2-3

No Action (No Permit) Alternative Bridge Crossing, Las Aguilas Creek

The free span bridge~~s~~ would not require any ephemeral stream channel~~s~~ to be filled; however, ~~they~~ it would result in moderate permanent upland habitat disturbance during construction and for the life of the project. There would be approximately 0.1 acre of permanent upland disturbance associated with ~~each~~ the bridge, or approximately 0.05 acre of permanent disturbance at ~~each~~ the bridge abutment~~s~~. Additionally, there would be temporary disturbance of stream channel and upland habitat from installation of the bridge~~s~~ and from staging areas needed to assemble the bridge parts and lift them into place.

Unnamed Ephemeral Drainage Crossings

The no action (no permit) alternative would avoid grading within jurisdictional areas on the eastern portion of the project site and use bottomless culverts to accommodate installation of the perimeter road. To offset the loss of developable area in the eastern portion of the project footprint, five 1.67 MW_{AC} solar arrays would either be split into smaller blocks with less spacing between panel rows or would be relocated to avoid impacts on waters of the U.S. Relocated arrays would be moved to the western portion of the project footprint, requiring additional medium voltage switchgear and cable to be routed to the east side transformer in the project substation. In addition, there would be smaller laydown areas throughout the site to accommodate construction worker parking and material storage, and vehicle traffic across the site would increase during construction. **Figure 2-2** shows the no action (no permit) alternative site layout.

Other project features such as the substation and switching station~~,~~ and PG&E telecommunication upgrades~~, and the measures described in **Sections 2.5.6** and **2.5.8** to reduce impacts, as well as the development of conservation lands described in **Section 2.5.7**~~, would be ~~similar to~~the same as the applicant's ~~proposed project~~preferred alternative described in **Section 2.5**, below. ~~Construction-related activities would also be the same as those described in **Section 2.5** except for the loss of developable area in the eastern portion of the project footprint as described above.~~ In addition, a~~A~~pplicant-proposed measures, mitigation measures developed through the San Benito County EIR process, and PG&E avoidance and minimization measures for telecommunication network upgrades described in **Sections 2.5.6** and **2.5.8** would also be part of the no action (no permit) alternative. Permanent and temporary acreages that would be affected under the no action (no permit) alternative are shown in **Table 2-2** and **Table 2-3**, respectively.

Note that the no action (no permit) alternative evaluated in the Final EIS is the same as evaluated in the Draft EIS (with the exception that the free-span bridge crossing over Panoche Creek would no longer be required).

Table 2-2
No Action (No USACE Permit) Alternative, Permanent Impacts

Project Feature	Area Impacted
Solar arrays	1,584 acres
Solar arrays, potential	60 acres
Project perimeter roads (including pullouts)	30 acres
Substation, switching station, and O&M building	12 acres
Graded areas[2] (outside of other project features)	106.5 acres
230 kV loop-in tubular steel poles (TSPs)	250 square feet
Perimeter fencing	0.06 acre
Vasquez County Road[3]	4 acres
Total Permanent Impacts[1]	**1,796 acres**

Notes:
[1]The project footprint is 2,506 acres, the same as the applicant's proposed project (Alternative A). The maximum total permanent disturbance is estimated to be 1,796 acres. While no grading would occur within jurisdictional waters of the U.S. on the eastern portion of the project site, an additional 60 acres outside of the Alternative A solar array footprint could be impacted from the reconfiguring of solar arrays outside of waters of the U.S.
[2]Limited grading is expected to be required because of the nearly flat terrain. Grading would be required on slopes greater than 3 percent for PV power blocks. Grading for the no action (no permit) alternative would include approximately 347.5 acres (195 acres for arrays; 30 acres for roads; 12 acres for the substation, switching station and O&M building; 4 acres for Vasquez County Road; and 106.53 acres for other grading areas) of proposed area that would be graded.
[3]Vasquez County Road would be replaced with a new road that would run outside of the project fence line south of Las Aguilas Creek (outside of Valley Floor Conservation Lands).

Table 2-3
No Action (No USACE Permit) Alternative, Temporary Impacts

Project Feature	Area Impacted
Road construction and perimeter fence buffers	72 acres
Federal crossing work areas (outside of waters of the U.S.)	~~4~~ 2acres
Temporary laydown yard	108 acres
Restricted work areas	194 acres
Solar array buffer, including Vasquez Road disturbance, including collector line installation	333 acres
Construction ponds	1 acre
Total Temporary Impacts	**~~712~~ 710 acres**

2.5 ALTERNATIVE A (APPLICANT'S PREFERRED ALTERNATIVE ~~PROPOSED PROJECT~~)

As described in **Chapter 1**, the project applicant is proposing to construct the Panoche Valley Solar Facility on lands that it secured with options to purchase. The applicant's currently proposed project would include ~~the~~ a ~~2,506~~2,154-acre solar facility (project footprint) and ~~24,176176~~25,618 acres of conservation lands. Conservation lands include approximately 2,514 acres of Valley Floor Conservation Lands, 442 acres of On-site Conservation Lands, 10,772 acres of

Valadeao Ranch Conservation Lands, and 10,890 acres of Silver Creek Ranch Conservation Lands. The project would also provide permanent protection and management of at least 1,000 acres of Additional Conservation Lands; these lands, which would be identified prior to construction and approved by CDFW, will be in the Panoche Valley and identified as high-quality, in-kind habitat for giant kangaroo rat. Conservation lands are being proposed as mitigation to offset potential impacts on federally and state listed species under the Endangered Species Act from constructing, maintaining, and operating the proposed solar facility. **Figure 2-4** shows the proposed project footprint and ~~the three areas of~~ identified conservation lands.

The ~~proposed project~~applicant's preferred alternative would result in the discharge of fill material into waters of the U.S., requiring a Department of the Army Section 404 permit from the USACE. The applicant's preferred alternative~~proposed project~~ would affect ~~0.122~~0.121 acre (approximately 3,504 linear feet) of jurisdictional ephemeral stream channels on the eastern and western portions of the project footprint. Approximately ~~31~~ 11 cubic yards of cut and fill would occur in ~~Panoche Creek and~~ Las Aguilas Creek for the construction of ~~two~~ a single-span road crossing~~s~~ as part of the perimeter road around the project facility, resulting in ~~0.002~~0.001 acre of impact. Approximately 668 cubic yards of cut and fill would occur within three unnamed drainages on the eastern side of the project site associated with installation of the perimeter fence, perimeter road, and grading/trenching to install the solar arrays, resulting in 0.12 acre of impact in these areas. These actions are described in more detail under *Drainage Crossings* in **Section 2.5.1**, below.

On July 28, 2015, a site visit was conducted by the applicant to determine if proposed mitigation efforts (debris removal, California tiger salamander pond creation, and cattle exclusion) on off-site conservation lands could potentially impact waters of the U.S. Results from the site visit indicated that mitigation efforts may potentially impact waters of the U.S. in the following areas:

- Debris Removal Area 1b (0.003-acre area)
- Debris Removal Area 4 (0.093-acre area)

Potential dredge and fill from mitigation efforts to remove debris from Debris Removal Areas 1b and 4 could result in up to 0.096 acre of impact to waters of the U.S. (see Figures 18a and 18b in **Appendix B** of the Final EIS).

The project site is bordered by rangeland on the north and south, by the Gabilan Range on the west, and by the Panoche Hills on the east. The site elevation ranges from approximately 1,200 feet above mean sea level near the southeastern end to approximately 1,400 feet above mean sea level near the western end of the project site. Panoche Creek and Las Aguilas Creek flow through the project site.

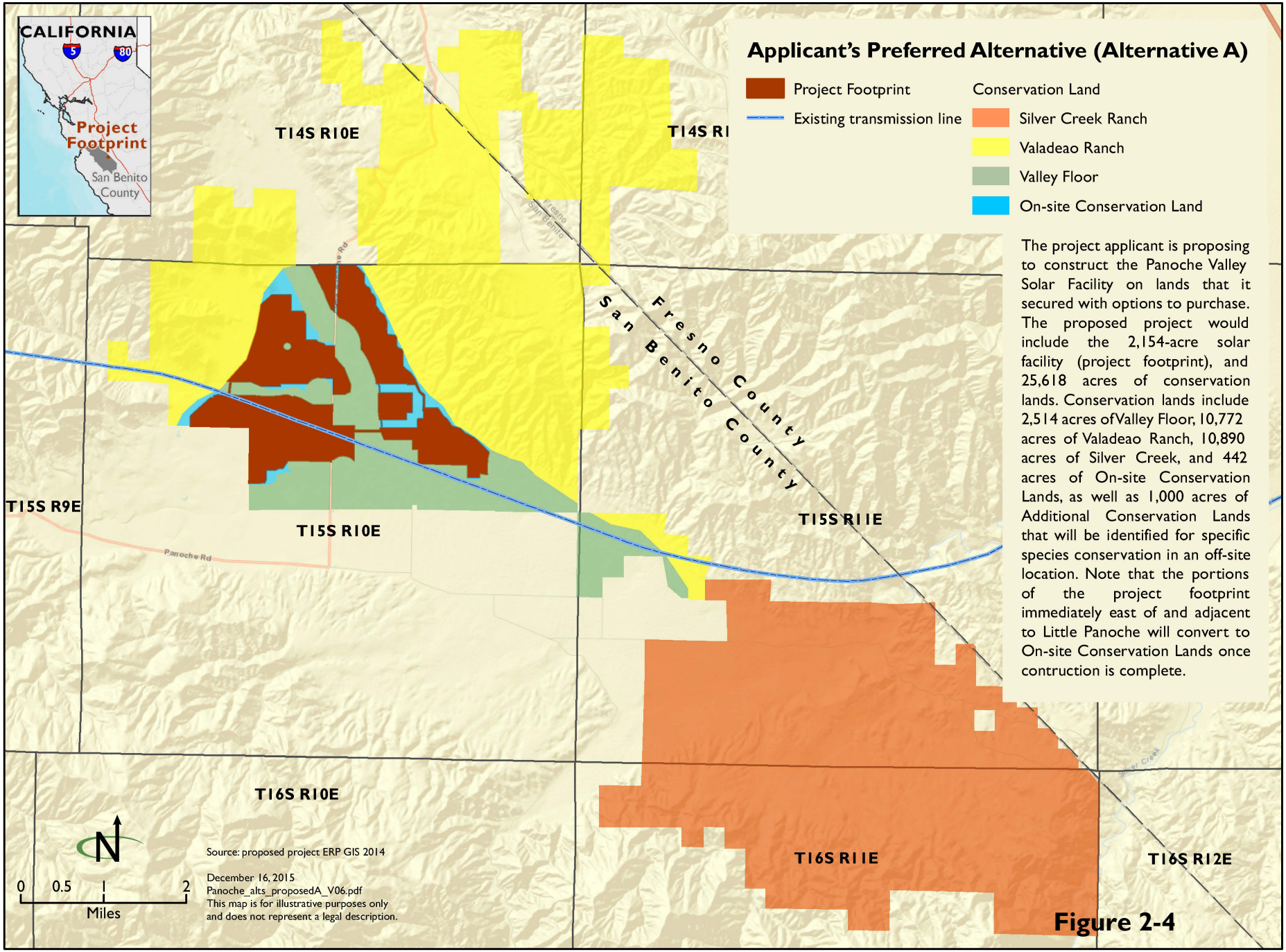

CALIFORNIA
5
80
Project Footprint
San Benito County
Applicant's Preferred Alternative (Alternative A)
Project Footprint
Existing transmission line
Conservation Land
Silver Creek Ranch
Valadeao Ranch
Valley Floor
On-site Conservation Land
The project applicant is proposing to construct the Panoche Valley Solar Facility on lands that it secured with options to purchase. The proposed project would include the 2,154-acre solar facility (project footprint), and 25,618 acres of conservation lands. Conservation lands include 2,514 acres of Valley Floor, 10,772 acres of Valadeao Ranch, 10,890 acres of Silver Creek, and 442 acres of On-site Conservation Lands, as well as 1,000 acres of Additional Conservation Lands that will be identified for specific species conservation in an off-site location. Note that the portions of the project footprint immediately east of and adjacent to Little Panoche will convert to On-site Conservation Lands once contruction is complete.
T14S R10E
T14S R
T15S R9E
T15S R10E
T15S R11E
T16S R10E
T16S R11E
T16S R12E
Fresno County
San Benito County
Panoche Rd
Silver Creek
N
0 0.5 1 2
Miles
Source: proposed project ERP GIS 2014
December 16, 2015
Panoche_alts_proposedA_V06.pdf
This map is for illustrative purposes only
and does not represent a legal description.

Figure 2-4

During the past forty years the project site has been used for cattle grazing; previously, crop production occurred over much of the site. A PG&E 230 kV transmission line runs in a generally east-west direction through the site on approximately 100-foot-tall, steel lattice towers.

2.5.1 Applicant's Preferred Alternative Project Features

The ~~proposed~~ applicant's preferred alternative's project features would consist of a solar field of ground-mounted PV modules, an underground electrical collection system that would convert generated power from direct current to alternating current, a substation that would collect and convert the alternating current from 34.5 kV to 230 kV, and a switching station. This station would then deliver the generated power to the state electrical grid via PG&E's Moss Landing-Panoche/Coburn-Panoche 230 kV transmission line that runs through the project site. PG&E primary and secondary telecommunications network upgrades would also be part of the proposed project.

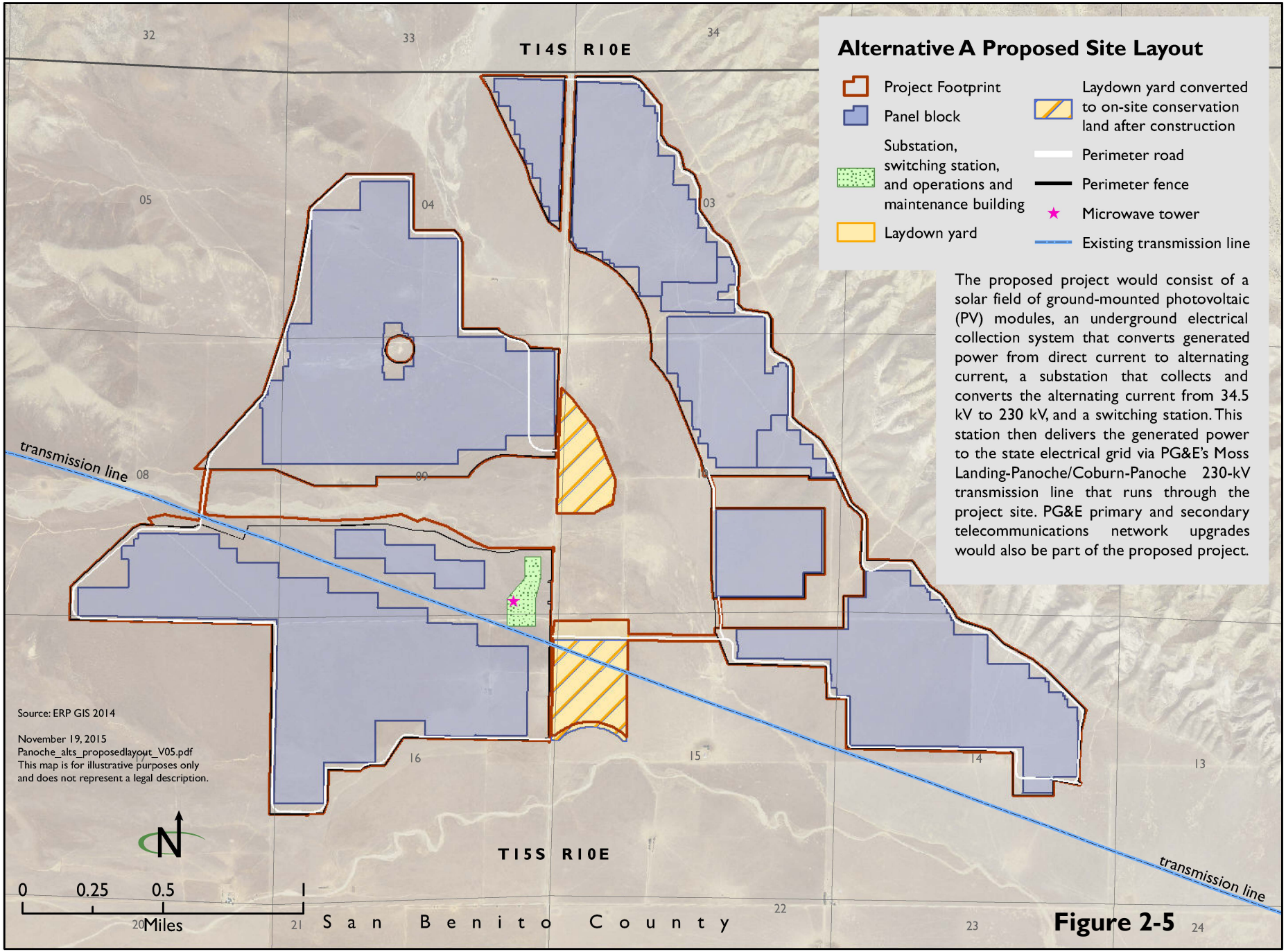
Key features of the applicant's preferred alternative~~proposed project~~ are described below, while permanent features are depicted on **Figure 2-5**. **Table 2-4** provides a breakdown of the acreages affected by the various components of the proposed solar facility.

Solar Project Components

PV Panels and Support Structures

PV panels would be installed on approximately ~~1,629~~ 1,529 acres of the project footprint. The ~~proposed project~~ applicant's preferred alternative would use over one million PV panels installed in a clockwise progression, beginning near the substation location south of Las Aguilas Creek and west of Little Panoche Road (**Figure 2-5**). The total number of PV panels would depend on the technology ultimately selected for the project. The ultimate decision for the technology would depend on market conditions, economic considerations, and environmental factors, including the recycling potential of the panels at the end of their useful lives. A single-axis tracker system would be used to support the PV panels.

Each PV panel would be approximately 3 feet by 6 feet; however, as technology changes during the life of the project, larger panels may be used. Panels would be a maximum of 10 feet high at the point of highest tilt, and panel faces would be non-reflective black or blue. All panels would be oriented to maximize solar resource efficiency. The PV solar panels would be mounted on direct-driven steel support structures up to 15 feet long and made of corrosion-resistant galvanized steel. Steel poles may be placed in holes backfilled with concrete if difficult soil conditions are found based on additional geotechnical evaluations.


Alternative A Proposed Site Layout
Project Footprint
Panel block
Substation, switching station, and operations and maintenance building
Laydown yard
Laydown yard converted to on-site conservation land after construction
Perimeter road
Perimeter fence
Microwave tower
Existing transmission line
The proposed project would consist of a solar field of ground-mounted photovoltaic (PV) modules, an underground electrical collection system that converts generated power from direct current to alternating current, a substation that collects and converts the alternating current from 34.5 kV to 230 kV, and a switching station. This station then delivers the generated power to the state electrical grid via PG&E's Moss Landing-Panoche/Coburn-Panoche 230-kV transmission line that runs through the project site. PG&E primary and secondary telecommunications network upgrades would also be part of the proposed project.
T14S R10E
T15S R10E
transmission line
transmission line
Source: ERP GIS 2014
November 19, 2015
Panoche_alts_proposedlayout_V05.pdf
This map is for illustrative purposes only
and does not represent a legal description.
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Miles
San Benito County

Figure 2-5

Table 2-4
Project Features

Project Feature	Area Impacted
Solar arrays[1]	~~1,629~~1,529 acres
Project perimeter roads (including pullouts)	30 acres
Substation, switching station, and O&M building	12 acres
Graded areas (outside of other project features)	~~106.5~~101 acres
230 kV loop-in tubular steel poles (TSPs)	250 square feet
Trenching and Foundations adjacent to arrays	~~12.41~~12 acres
Perimeter fencing	~~0.06~~0.2 acre
Vasquez County Road	4 acres
Permanent Impact Areas	*~~1,794~~1,688.2 acres*
Temporary Impact Areas	*~~712~~ 465.8 acres*
TOTAL PROJECT FOOTPRINT	**~~2,506~~2,154 acres**

[1] Includes foundations, direct current trench, alternating current trench, grading within the solar arrays, access corridors, and solar array work areas. Solar panels and associated electrical equipment would be installed on approximately 185,000 support post foundations. Posts would be steel I-shaped sections with a cross sectional area of 4.5 square inches each. Includes 2.33 acres of foundations for posts, inverters, and transformers. ~~Includes 2.33 acres for foundations, 26.64 acres of direct current trench, 8.84 acres of alternating current trench, 205.47 acres of grading, and 1,385.72 acres of solar array work areas. Solar panels and associated electrical equipment would be installed on approximately 185,000 support post foundations. Posts would be steel I-shaped sections with a cross sectional area of 4.5 square inches each.~~

[2] Limited grading is expected to be required because of the nearly flat terrain. Grading would be required on slopes greater than 3 percent for PV power blocks. ~~Final grading plans for the project are under development; however, t~~The applicant's preferred alternative includes approximately 352 acres of proposed area that would be graded: 205.47 acres for arrays, 30 acres for roads, 4 acres for Vasquez County Road, 100.53 acres for other grading areas, and 12 acres for the substation, switching station, and O&M building~~proposed project includes approximately 358 acres (205.47 acres for arrays; 30 acres for roads; 12 acres for the substation, switching station and O&M building; 4 acres for Vasquez County Road; and 106.53 acres for other grading areas) of proposed area that would be graded~~.

[3] Vasquez County Road would be replaced with a new road that would run outside of the project fence line south of Las Aguilas Creek (outside of the Valley Floor Conservation Land).

Rows of panels would be spaced approximately 10 to 35 feet apart to prevent shading of adjacent rows. Rows of panels would be configured into power blocks connecting to an inverter system. The purpose of the inverter system is to convert the direct current energy produced by the panels to alternating current energy that is required for electric transmission.

The facility would consist of 145 1.67-MW power blocks and 6 0.83-MW power blocks. Each power block would be up to 520 feet by 90 feet. The blocks would contain the number of panels required to make up the 1.67-MW or 0.83-MW output from the inverter. This would depend on the wattage of the panels ultimately selected for the final design. The number of rows per power block is estimated to be between 8 and 34. The actual energy output of the project would depend on the technology available during the life of the project; output may increase if improved technology allows for the installation of higher

efficiency PV panels within the same project footprint and without any increase in resource impacts.

The normal operating temperature of the PV panel face would be 25 to 35 degrees Fahrenheit (°F) above maximum ambient temperature. Panel face temperatures of approximately 130 to 140°F would be expected on typical summer days. Panels would shade the area below.

The project footprint would include a 20-foot-wide perimeter road that would be used for maintenance and emergency response (with additional pullout locations for vehicles to be able to pass each other). In addition, interstitial space between panels would be used for transportation access during maintenance. Transportation corridors may be native vegetative cover or maintained dirt access points.

Electricity Collection Lines and Inverters

Electrical energy in the form of direct current generated by the PV panels would be collected in combiner boxes and routed to an inverter. A combiner box is a small electrical enclosure, approximately four cubic feet in size, which is mounted on the PV racking system. It allows the PV string voltages to be placed in parallel, increasing the direct current. Electricity from panel combiner boxes would be gathered via an underground or rack-mounted direct current collection system from the arrays to centralized inverters. The project would use between 27 and 30 boxes per power array depending on the technology used. The inverter systems are typically enclosed and mounted on concrete or steel foundations, with the entire structure being approximately 15 feet wide by 40 feet long by 10 feet high. There would be one of these structures per power block.

The project would also use approximately 151 inverters and 151 transformers coupled in sets of one inverter and one transformer on a shared foundation. The inverter systems are not typically enclosed and are mounted on concrete foundations or steel piers, with the entire structure being approximately 8 feet wide by 40 feet long by 10 feet high. There would be one of these structures for each power array.

The direct current would be converted to alternating current by the inverters, stepped up by the transformers, and transmitted to the proposed substation via 34.5 kV alternating current medium-voltage collection lines. The medium voltage collection lines would begin at the inverter-transformer foundation and would be located underground in trenches until the output from between 8 and 10 power blocks terminates in the collection breaker of the substation.

Some of the 34.5 kV collection wires are a distance of 1,000 feet or more from the collection breakers in the switching station and outside the PV field; these may be mounted overhead on standard wood or steel poles along the site

boundary. These poles would be approximately 25 feet high and spaced approximately 250 feet apart.

The most recent Avian Power Line Interaction Committee (APLIC) guidelines for avian protection would be followed on overhead structures and lines. Avian safe design features and other project measures to avoid, minimize, and mitigate impacts on avian species would be outlined in a project bird and bat conservation strategy.

Substation and Switching Station

A substation and switching station would be constructed north of the existing PG&E transmission line on the west side of Little Panoche Road (see **Figure 2-5**). Electrical transformers, switchgear, and related substation facilities would be designed and constructed to transform medium-voltage power from the project's delivery system to the existing PG&E 230 kV transmission line. Substation equipment would cover approximately 9 of the 12.4-acre substation area.

The substation equipment would range in height from 3 feet to 35 feet. In addition, one approximately 100-foot-tall microwave tower would be constructed in this area, as described in **Section 2.5.8**, PG&E Telecommunications Upgrades and shown on **Figure 2-5**, and up to 12 approximately 135-foot tall tubular steel poles (TSP) would be installed to connect to PG&E's existing transmission line. Up to two existing lattice steel transmission structures would also be removed. The substation site would be graded and compacted to an approximately level grade. Concrete pads would be constructed as foundations for substation equipment, and the remaining area would be graveled. A new on-site access road would be constructed to serve the substation and an approximately 1-acre fenced parking area. **Figure 2-6** is a conceptual illustration of the proposed substation.

The substation would include two transformers containing approximately 12,500 gallons of mineral oil each. Secondary containment would be provided to accommodate an accidental spill of transformer fluid. No PCB-laden fluids would be used.

The switching station and substation would contain two small buildings to house control equipment. A modular protection automation and control (MPAC) building would house PG&E's switching station control and protection equipment, and a protection and control building would house the substation relaying and Supervisory Control and Data Acquisition (SCADA) equipment.

Operation and Maintenance Building

An operations and maintenance (O&M) building would be constructed next to the substation site (**Figure 2-5**). This building would house relay, protection, and SCADA equipment. It would be an approximately 1,800-square-foot

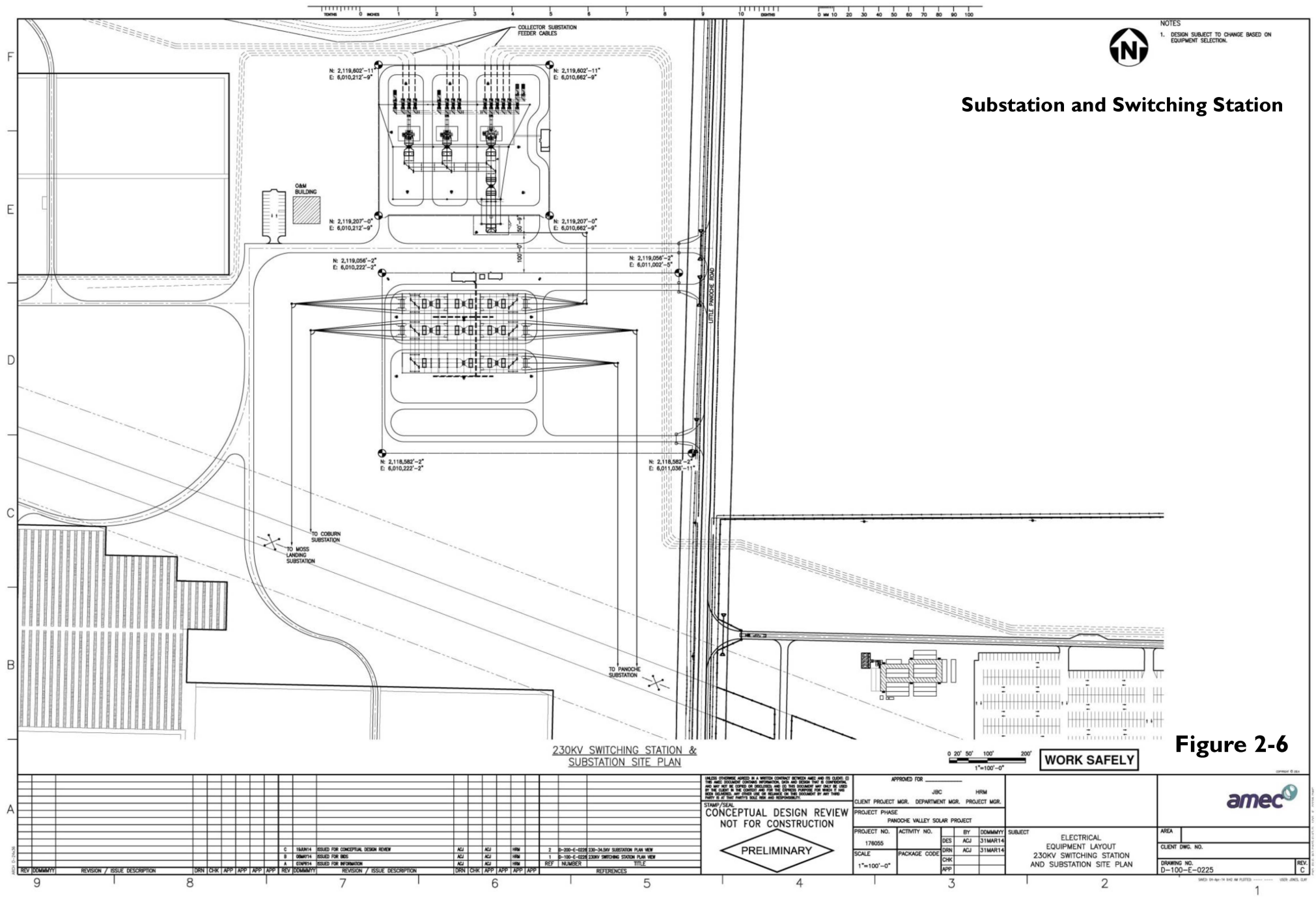

Substation and Switching Station
NOTES
1. DESIGN SUBJECT TO CHANGE BASED ON EQUIPMENT SELECTION.
COLLECTOR SUBSTATION FEEDER CABLES
O&M BUILDING
LITTLE PANOCHE ROAD
TO COBURN SUBSTATION
TO MOSS LANDING SUBSTATION
TO PANOCHE SUBSTATION
230KV SWITCHING STATION & SUBSTATION SITE PLAN
WORK SAFELY
CONCEPTUAL DESIGN REVIEW NOT FOR CONSTRUCTION
PRELIMINARY
PANOCHE VALLEY SOLAR PROJECT
ELECTRICAL EQUIPMENT LAYOUT 230KV SWITCHING STATION AND SUBSTATION SITE PLAN
D-100-E-0225

Figure 2-6

building consisting of standard steel on a concrete slab. The facility would provide operations equipment and parts storage, security, and site monitoring; its maximum height would be 20 feet. The O&M building would be inside the collection portion of the substation fence and would be built in accordance with local codes and standards. Worker parking would be provided in a parking lot next to the O&M building.

Project Roads

Project roads would be limited to a 20-foot-wide perimeter road with pullouts every ~~2~~,500 to 3,000 feet. Pullouts would be approximately 20 feet wide by 300 feet long. Portions of the perimeter roads that cross on-site federal jurisdictional washes over~~Panoche Creek and~~ a portion of Las Aguilas Creek would be used only for emergency access or for limited maintenance to cables in the bridge crossing at Las Aguilas Creek. Interstitial space between rows of panels would be used as transportation corridors for maintenance and access for site safety. These transportation corridors would be dirt paths, with no gravel or compaction.

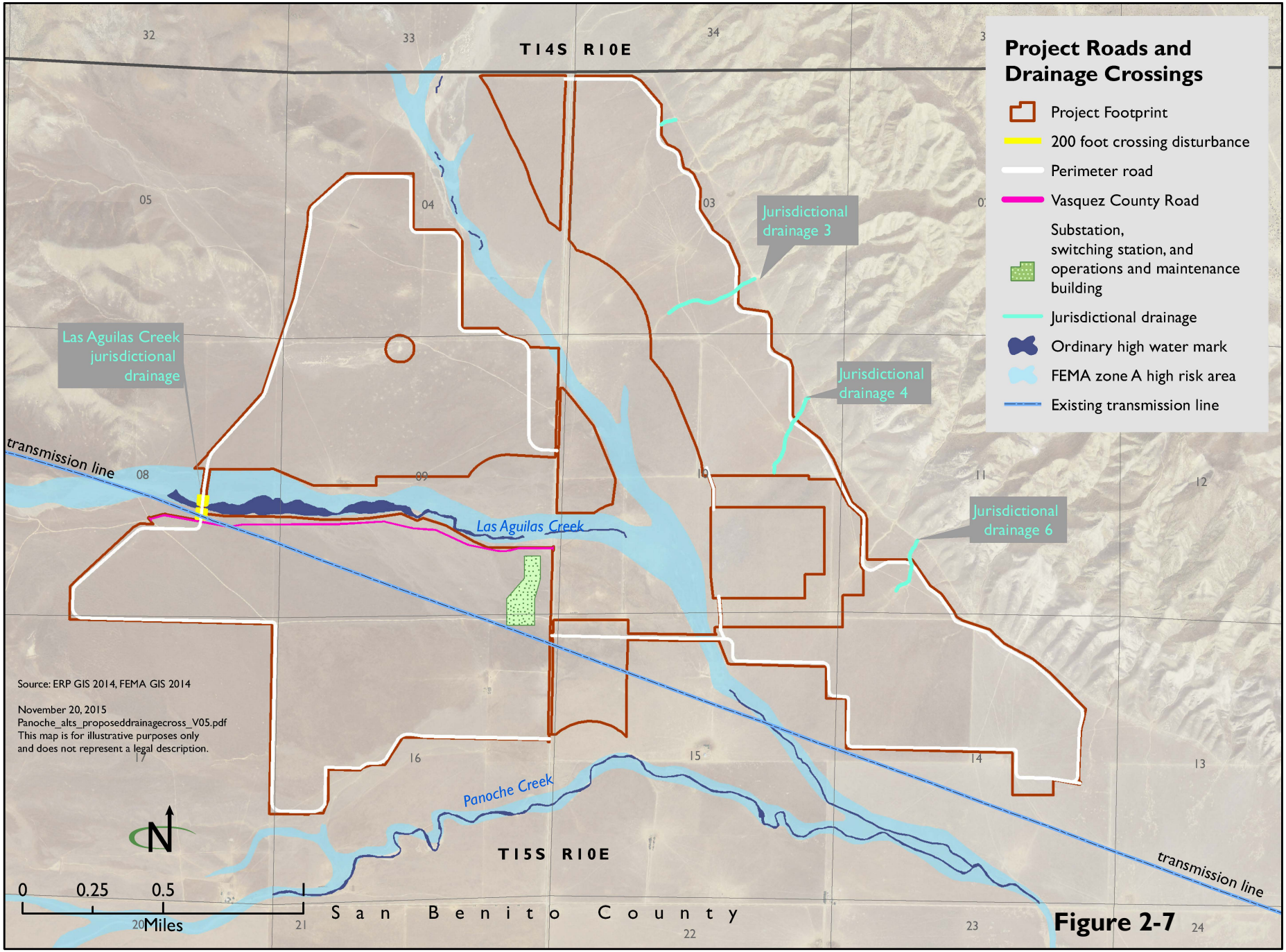
An additional transportation corridor, a maintained fenced-off dirt and gravel path, would be placed south of Las Aguilas Creek and north of the perimeter fence line. This transportation corridor would provide access to the western portion of the Valadeao Ranch Conservation Lands from Little Panoche Road for landowners and ranchers.

All overhead obstructions would have a minimum vertical clearance of 15 feet. All road and access designs would be reviewed and approved by the San Benito County Public Works Engineers and Administrator and the Hollister Fire Department Chief before final design submittal. **Figure 2-7** shows the proposed road layout and drainage crossings, while **Table 2-5** shows the estimated areas and lengths of the access road.

Table 2-5
Proposed Access Road Dimensions

Access Road Type	Length	Width	Area
Perimeter access road with pullouts	65, 445~~658~~ feet	20 to 40 feet	30 acres

Two 30-foot-wide native dirt access roads would be established through the East Side GKR Corridor, one through the northern arm and one through the southern arm. These access roads would be located in areas previously identified as part of the solar arrays. No ground preparation or placement of gravel or other material would be conducted within these access roads. Trenching of electrical cables would be conducted through these roads. Three-strand wire fences would be placed along the access roads and the perimeter of the East Side GKR Corridor to prevent unauthorized access through the protected GKR Corridor by personnel or vehicles during construction and O&M. These two access roads would be used as needed during authorized O&M activities; however, no traffic would be permitted at night except for emergency purposes.


Project Roads and Drainage Crossings
Project Footprint
200 foot crossing disturbance
Perimeter road
Vasquez County Road
Substation, switching station, and operations and maintenance building
Jurisdictional drainage
Ordinary high water mark
FEMA zone A high risk area
Existing transmission line
T14S R10E
T15S R10E
Jurisdictional drainage 3
Jurisdictional drainage 4
Jurisdictional drainage 6
Las Aguilas Creek jurisdictional drainage
Las Aguilas Creek
Panoche Creek
transmission line
transmission line
Source: ERP GIS 2014, FEMA GIS 2014
November 20, 2015
Panoche_alts_proposeddrainagecross_V05.pdf
This map is for illustrative purposes only
and does not represent a legal description.
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Miles
San Benito County

Figure 2-7

Emergency egress and access roads for the project would cross ~~Panoche Creek,~~ Las Aguilas Creek~~,~~ and three unnamed drainages on the eastern side of the project footprint (see **Figure 2-7**). These crossings require a permit from USACE under Section 404 of the Clean Water Act and a Section 401 Water Quality Certification from the Regional Water Quality Control Board.

The crossings of washes, creeks, and drainages that are potentially waters of the State and regulated by the CDFW require a CDFW Lake and Streambed Alteration Agreement.

Drainage Crossings

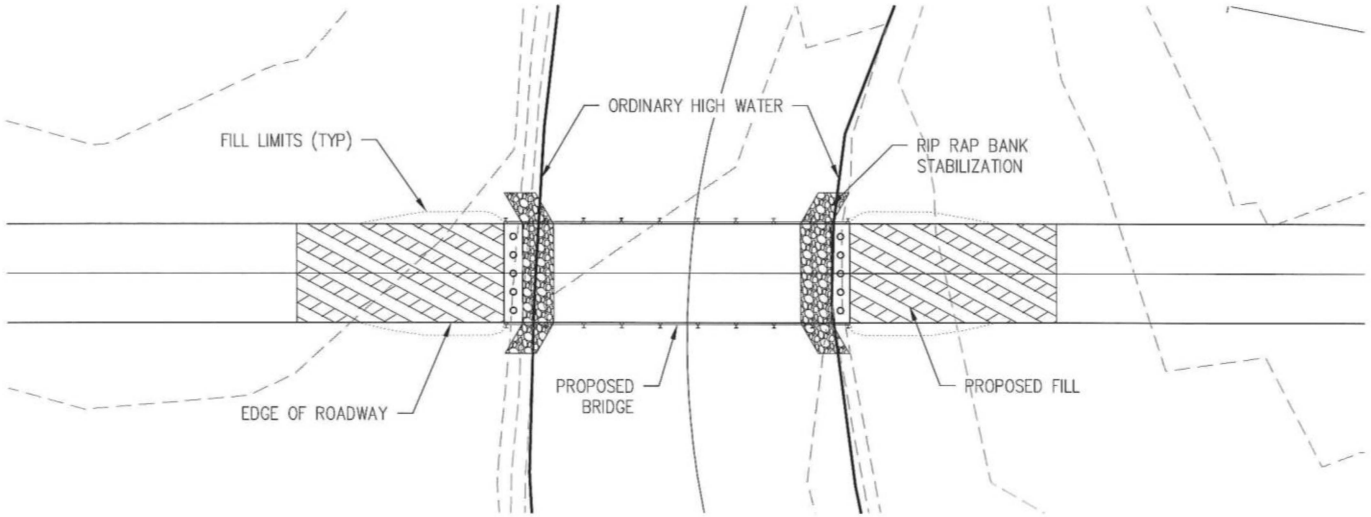
The applicant has applied for a Department of the Army Section 404 permit from the USACE to allow the placement of fill into ~~0.122~~0.121 acre of ephemeral stream channel~~s~~ classified as other waters of the U.S. The areas affected include ~~Panoche Creek and~~ Las Aguilas Creek on the western side of the project footprint and three unnamed drainages on the eastern side of the project footprint. The work proposed in these areas is described below.

Las Aguilas Creek ~~and Panoche Creek~~ Ephemeral Stream Crossing~~s~~

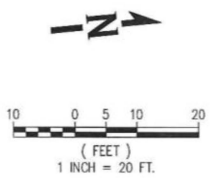
Under Alternative A, the applicant would use a single-span bridge~~s~~ to cross Las Aguilas Creek~~ and Panoche Creek~~. The single-span bridge design~~s~~ ~~for each crossing are~~is shown on **Figure 2-8** ~~and **Figure 2-10**~~; the proposed span length~~s~~ and area impacted by ~~each of~~ the crossing~~s~~ are described in **Table 2-6**. The single-span bridge~~s~~ would be long enough to reach from bank to bank across the creek~~s~~ without an additional footing in the center of the creek. The single-span bridge~~s~~ would have footings that are placed on each side of the bank, outside of the Ordinary High Water Mark (OHWM). Only the areas within the OHWM constitute waters of the U.S. subject to Clean Water Act jurisdiction. No Section 404 permit from the USACE is required for fill or other activity outside of the OHWM. The distance between the bridge footings would be designed to minimize upstream and downstream hydrological and hydraulic effects and minimize fill inside the OHWM.

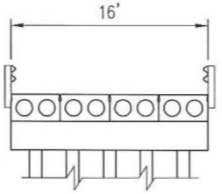
To construct the bridge~~s~~, the crossing deck~~s~~ would be brought to the project site in approximately three to four sections and would total the length of the entire crossing. Each section would be lifted with a crane and placed on the footings. The crane would sit near the bank of the crossing but would not enter the jurisdictional area. Once the sections were laid next to each other on the footings, a final concrete bridge deck would be poured across the deck. A guardrail would be placed on the sides of the bridge.

The abutments and footings may affect channel flow dynamics during high hydraulic events due to potential flow restriction and reduced flow velocity, although the single-span bridges would be designed to provide maximum water conveyance through the site. Riprap or other bank armament would be placed along the footing installations to prevent erosion or scouring along and behind

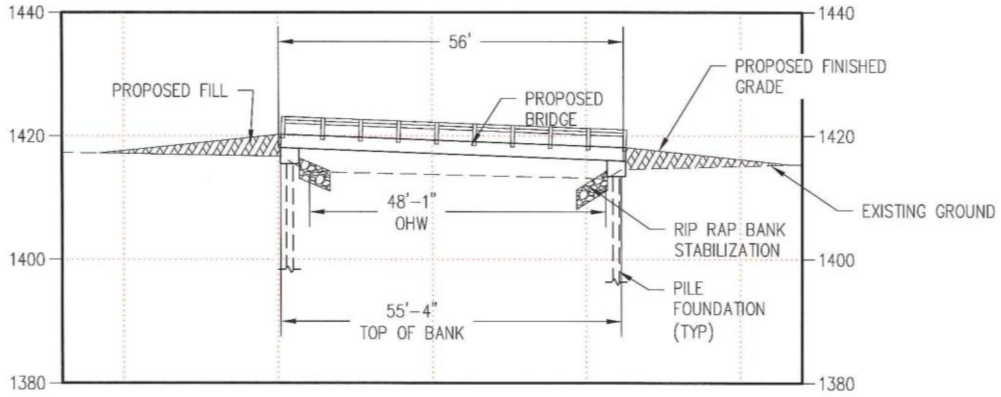


PLAN





TYPICAL SECTION
NOT TO SCALE



ELEVATION

Figure 2-8

Alternative A Bridge Crossing, Las Aguilas Creek

PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION
WHPacific

PROJECT NUMBER	DRAWING FILE NAME	DATE
035916	035916_EX02.dwg	10-08-13

Table 2-6
Creek Crossing Impacts, Single-Span Bridges

Access Road Type	Las Aguilas Crossing	~~Panoche Creek Crossing~~
Width between tops of banks	~~56~~ 641.5 linear feet	~~53 linear feet~~
Width of OHWM	48 linear feet	~~20 linear feet~~
Area of impact within OHWM		
Cut	32 square feet	~~24 square feet~~
Fill	32 square feet	~~24 square feet~~
Volume of material that would be disturbed within OHWM		
Cut	5 cubic yards	~~10 cubic yards~~
Fill	6 cubic yards	~~10 cubic yards~~
Area of impact outside of OHWM		
Outside top of bank, cut area	0 square feet	~~0 square feet~~
Outside top of bank, fill area	1,510 square feet	~~1,510 square feet~~
Total Impact within top of bank~~, cut area~~	~~96~~ 19,342 square feet	~~160 square feet~~
~~Within top of bank, fill area~~	~~96 square feet~~	~~160 square feet~~
Volume of material disturbed outside OHWM		
Outside top of bank, cut area	0 cubic yards	~~0 cubic yards~~
Outside top of bank, fill area	150 cubic yards	~~150 cubic yards~~
Within top of bank, cut area	~~10~~ 338 cubic yards	~~10 cubic yards~~
Within top of bank, fill area	~~10~~ 390 cubic yards	~~10 cubic yards~~

Source: Energy Renewal Partners 2014

the footings. This would ensure that the bridge is stable and able to withstand high water flows without damage. It also would ensure that the bridge is available for use by emergency personnel at all times, including during and immediately after high water flows.

Permanent disturbance would result in approximately 0.001 acre of cut and fill within the OHWM of Las Aguilas ~~and approximately 0.001 acre of cut and fill within the OHWM of Panoche~~ Creek. No permanent fill of waters of the U.S. would be required for electrical cables in the construction of the single-span bridge~~s~~ because the project would use cables within the bridge deck~~s~~.

The single-span bridge~~s~~ would result in permanent upland habitat disturbance from permanent upland fill needed at each end of the span to accommodate the higher deck elevation. There would be approximately ~~3,020~~1,510 square feet (~~0.07~~ 0.035 acre) of permanent upland disturbance from placing fill for the ~~two~~ bridge~~s~~. Additionally, there would be temporary disturbance of adjacent upland from installing the bridge~~s~~ and from the staging areas needed to assemble the bridge~~s~~ and lift ~~them~~ it into place.

Unnamed Ephemeral Stream Crossings

In addition to Las Aguilas ~~and Panoche~~ Creek~~s~~, there are three additional federal jurisdictional impact areas that would be affected by the proposed project. These areas are described as Crossings/Impact Areas 3, 4, and 6 in the

applicant's Section 404(b)(1) alternatives information (the area described as Crossings/Impact Area 5 was avoided through engineering design); this terminology has been retained in the EIS. These areas, located along the eastern boundary of the project footprint, are shown on **Figure 2-7**. They would be disturbed during construction of the 20-foot-wide perimeter road that would be used for maintenance and emergency response; grading would be necessary to establish the required slopes for panels and to control stormwater and erosion across the project footprint (see **Table 2-7**); **Appendix D**, Drainage Crossing Drawings, contains schematics for these crossings.

Table 2-7
Unnamed Drainage Crossing Impacts

	Crossing/ Impact Area 3	Crossing/ Impact Area 4	Crossing/ Impact Area 6
Width of OHWM	4 feet	1.5 feet	3 feet
Area of impact within OHWM			
Cut	0 square feet	248 square feet	177 square feet
Fill	2,317 square feet	1,747 square feet	1,267 square feet
Volume of material that would be disturbed within OHWM			
Cut	0 cubic yards	15 cubic yards	7 cubic yards
Fill	524 cubic yards	86 cubic yards	36 cubic yards
Area of impact outside of OHWM	42,517 square feet	19,494 square feet	23,052 square feet
~~Within top of bank, cut area~~	~~0 square feet~~	~~6,420 square feet~~	~~3,056 square feet~~
~~Within top of bank, fill area~~	~~54,877 square feet~~	~~22,246 square feet~~	~~16,677 square feet~~
Volume of material that would be disturbed outside OHWM			
Within top of bank, cut area	~~0~~ 103 cubic yards	~~594 cubic yards~~9	~~181~~ 6 cubic yards
Within top of bank, fill area	~~5,864~~4,341 cubic yards	~~8,241~~922 cubic yards	~~309~~ 575 cubic yards

Source: Energy Renewal Partners 2014

Crossing/Impact Area 3

The applicant is proposing to install a pipe arch culvert at Crossing/Impact Area 3 to accommodate the proposed perimeter road. This structure would include a headwall and riprap at both ends. The roadway design would include shoulders and guardrails above the culvert. In addition to installing the culvert, the applicant would grade and fill jurisdictional areas downstream of the culvert installation area to meet slope requirements for the solar panels in that area; trench for underground cables; allow surface flows to reach Las Aguilas Creek; and install fencing.

Impacts on waters of the U.S. would result from the placement of a corrugated metal pipe arch culvert with headwall and riprap. A concrete weir/cut-off wall with a riprap apron would be installed approximately 40 feet downstream of the culvert outlet. In addition to the installation of the culvert, there would be impacts to federally jurisdictional areas downstream of the culvert from grading/filling of the existing federally jurisdictional channel. Grading/filling of the existing federally jurisdictional channel is required to meet the maximum slopes

needed to install the tracker system between the panels. Grading and filling is required to limit the height of the modules above grade (higher modules would require deeper non-uniform foundations) and disperse the concentrated surface water flows found in the existing channel around the tracker support posts to decrease wash out of the tracker and the panel support posts.

After the grading/filling of the existing federally jurisdictional channel, erosion protection such as large riprap, the placement of concrete cut-off wall with surrounding riprap, erosion control blankets, and grassing would be installed. The culvert would be approximately 90 linear feet and sized to be 71 inches by 47 inches. A concrete cut-off wall with a riprap apron would be installed approximately 40 feet downstream of the culvert outlet. This cut-off wall would dissipate flow and decrease potential scour and erosion within the panel installation area.~~The concrete cut-off wall with riprap apron would be installed approximately 90 feet downstream of the culvert outlet. The cut-off wall would extend approximately 8 feet below the ground surface. This cut-off wall would dissipate flow, and decrease potential scour and erosion within the panel installation area. The water would ultimately flow across the site to Las Aguilas Creek~~.

The pipe arch culvert and grading and filling the downstream channel would result in the permanent disturbance of approximately 0.05 acre (~~2,317~~1,529 linear feet) within the OHWM associated with this drainage.

Crossing/Impact Area 4

The applicant is proposing to install low water crossings within federal jurisdictional waters at Crossing/Impact Area 4 to accommodate the proposed perimeter road. The low water crossings would be designed to be overtopped during high surface water flows, but at a flow rate and depth that would allow for emergency vehicle access and that would meet the San Benito Code of Ordinances, Title 23: Subdivisions, Chapter 23.31 Improvement Standards, Article III Storm Drainage Design Standards, Sub Article 23.31.042 Hydraulic Criteria.

Low water crossings are proposed within drainage channels that are relatively unentrenched, where the channel side slopes are less than eight percent, and where stream depth is less than four feet. These requirements allow a proposed crossing to be constructed as close to the existing channel bottom elevation as possible. The low water crossings at Crossing/Impact Area 4 would be designed to minimize any potential changes to the channel morphology. They would also allow for an adequate vertical curve length in the road to accommodate vehicles using the crossings.

The type of improved low water crossings proposed for this crossing/impact area would be a rock crossing. This type of crossing is typically used for drainages that have flows of less than 10 feet per second. Rock crossings would be constructed using six to eight inches of well-graded coarse rock. This rock

would be in-filled with finer graded aggregate and installed on top of a geotextile fabric separating the rock layers from the subgrade. The potential for scouring due to water flow over the installed crossing would be reduced by the riprap on both the upstream and downstream sides of the constructed crossing. The maintenance required for the rock crossing would involve periodically replacing finer material, which has the potential to be removed from the crossing during heavy traffic and high surface water flows.

In addition to installing the low water crossings at Crossing/Impact Area 4, the applicant would grade and fill jurisdictional areas to meet slope requirements for the solar panels in that area. After the jurisdictional drainage channel is graded and filled, erosion protection measures would be implemented similar to those described for Crossing/Impact Area 3.

The planned construction of the low water crossing would impact approximately 0.04 acre (~~1,747~~1,156 linear feet) of jurisdictional drainages from installing the crossing and grading and filling the drainage below the crossing.

Crossing/Impact Area 6

The applicant is proposing to reroute the jurisdictional drainage at Crossing/Impact Area 6. Any surface water flowing onto the project footprint would be redirected into a roadside drainage feature next to the perimeter road, southeast into an unnamed jurisdictional ephemeral drainage, which is not a federal jurisdictional water.

The roadside drainage feature would be constructed with lined bend protection, structures to assist in slowing the runoff velocity, and additional sediment and erosion control measures. Once the diverted flow from the roadside drainage flows across the unnamed ephemeral drainage to the southeast, the flow velocity would be decreased by constructed energy dissipaters.

In addition, the applicant would grade and fill jurisdictional areas to meet slope requirements for the solar panels in that area and to maintain appropriate surface flow on the project footprint.

The actions described above would impact approximately 0.03 acre (~~1,267~~799 linear feet) of jurisdictional stream for Crossing/Impact Area 6.

Fencing

Security Fencing

Security fencing would be constructed around the project footprint (see **Figure 2-5**). The chain-link fence would have a 5- to 6-inch gap along the bottom that would allow wildlife to travel through the site and link up with the existing travel corridors. These fencing designs have been previously approved or suggested by the CDFW and USFWS for other solar projects.

Fences surrounding the O&M building would use the same fencing plan, unless otherwise determined by CDFW and USFWS. Gated eight-foot-high chain-link fences would be constructed around the switching station, in accordance with the PG&E standard. All permanent materials would be industrial strength with galvanized steel to aid visual dulling over time.

Species Exclusion Fencing

Temporary wildlife exclusion fencing would be placed around construction staging areas and construction of water ponds for wildlife protection. Wildlife exclusion fencing may also be installed in other areas around the project as needed to help minimize impacts on species. This could include areas adjacent to conservation lands that will be graded. The primary function of temporary species exclusion fencing is to prevent special status, small vertebrate species (e.g., giant kangaroo rat, blunt-nosed leopard lizard, and California tiger salamander) from entering the construction sites, where they can be killed, injured, or isolated.

In general, wildlife exclusion fencing is to be installed before any ground disturbance, equipment laydown, site preparation, or construction, as deemed necessary by the designated biologist. The exclusion fencing would be equipped with breaks and/or one-way exits every 250 to 500 feet to avoid entrapping species. Care would be taken in exclusion fencing design in the event that cattle or sheep are expected to be next to the fencing. The exclusion fencing, which is detailed in the project's comprehensive fencing plan, would be removed after construction.

Water Tanks and Water Treatment

In order to accommodate water use during construction, the applicant proposes to construct ~~three~~ two temporary construction water ponds with a combined capacity of approximately 4.4 million gallons, along with three temporary 20,000-gallon water tanks near existing or new wells. Temporary exclusionary fencing would be installed around the ponds for safety and to restrict access by special status species. The temporary ponds would be removed at the end of construction. Temporary piping would be used to transport water from the ponds to drop tanks at designated locations around the project site. Permanent piping would be installed from permanent water storage tanks to the O&M building for use during operations, including providing water to the fire suppression system.

Four permanent 4,000-gallon water tanks would be located near existing well sites. Water in the storage tanks, holding approximately 16,000 total gallons, would be used for washing solar panels. Water from these tanks would also be used as part of the firefighting system and for facilities in the O&M building.

Panel washing requires water with very low total dissolved solids (TDS). If required, a filter would be installed to filter TDS from the well water source. No reject water would be produced during the filtering. The filter would be a

self-contained cartridge attached directly to the well (if needed); therefore, all water would flow through the filter from the well, and no reject water would be produced. The filter would be replaced as needed to maintain appropriate water filtration levels.

2.5.2 Solar Project Site Design and Engineering

Site Disturbance

Permanent disturbance would result from the construction of the following:

- Project footprint perimeter roads and emergency access/egress points
- Project perimeter fence
- Maintenance transportation corridors
- The substation, switching station, and O&M facility
- Tubular steel transmission poles
- Stormwater control basin
- Parking areas
- Collector lines
- Solar array footers
- Equipment pads

The areas of potential grading within the project footprint overlap with other permanent features, including solar arrays, perimeter roads, the substation, the switching station and O&M building, a stormwater control basin, and collector lines. Graded areas combined total approximately ~~358~~ 352 acres. Permanent impacts are shown in **Table 2-8** and on **Figure 2-9**.

In addition to permanent impacts from project infrastructure, there would be temporary impacts from constructing permanent project features and from staging material and equipment on the site. Areas of temporary disturbance would be restored in accordance with the habitat restoration and revegetation plan developed for the proposed project. Disturbed areas would be recontoured where appropriate and planted with ~~an approved~~ weed-free seed mix. Noxious weeds would be controlled through the ~~noxious~~ weed ~~and invasive plant~~ control plan. Herbicides used for noxious weed control would be applied in accordance with federal and state regulations. Temporary impacts are shown in **Table 2-9** and on **Figure 2-10**.

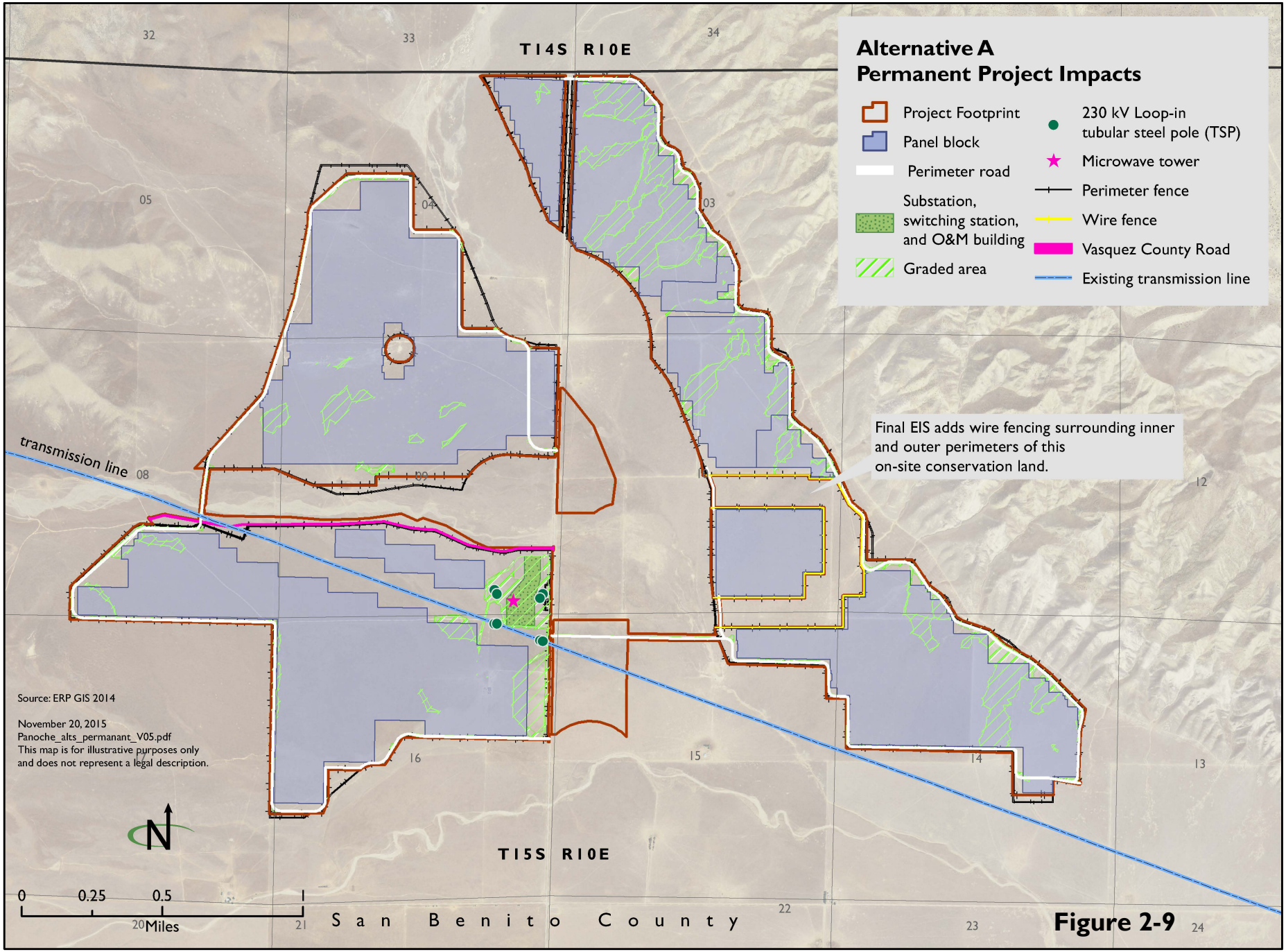

Alternative A
Permanent Project Impacts
Project Footprint
Panel block
Perimeter road
Substation, switching station, and O&M building
Graded area
230 kV Loop-in tubular steel pole (TSP)
Microwave tower
Perimeter fence
Wire fence
Vasquez County Road
Existing transmission line
T14S R10E
T15S R10E
transmission line
Final EIS adds wire fencing surrounding inner and outer perimeters of this on-site conservation land.
Source: ERP GIS 2014
November 20, 2015
Panoche_alts_permanant_V05.pdf
This map is for illustrative purposes only and does not represent a legal description.
N
0 0.25 0.5
Miles
San Benito County

Figure 2-9

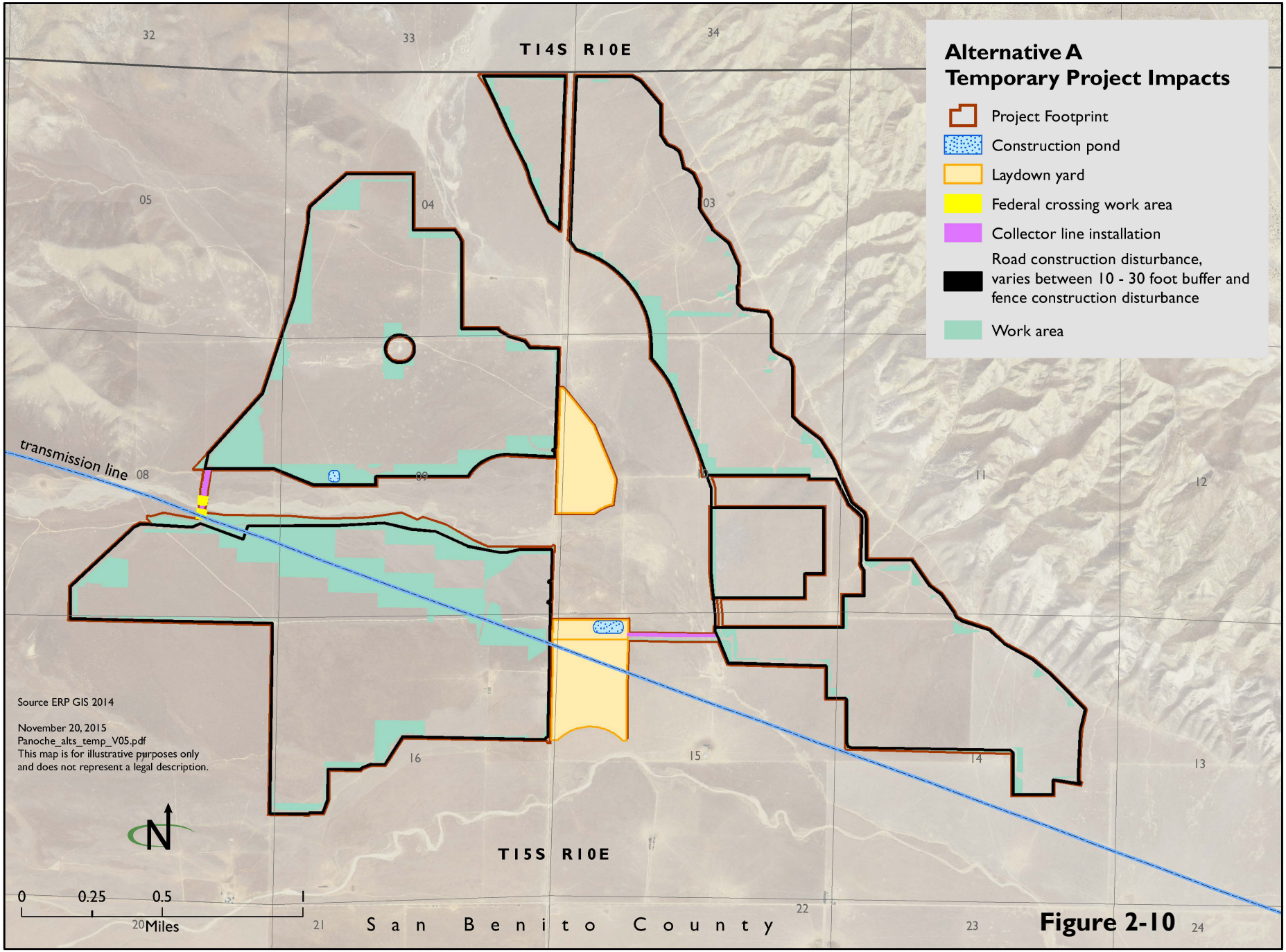

Alternative A
Temporary Project Impacts
Project Footprint
Construction pond
Laydown yard
Federal crossing work area
Collector line installation
Road construction disturbance, varies between 10 - 30 foot buffer and fence construction disturbance
Work area
T14S R10E
T15S R10E
transmission line
Source ERP GIS 2014
November 20, 2015
Panoche_alts_temp_V05.pdf
This map is for illustrative purposes only
and does not represent a legal description.
N
0 0.25 0.5 1
Miles
San Benito County

Figure 2-10

Table 2-8
Permanent Project Disturbance

Work Area Description	Total Impact
Solar arrays[1]	~~1,629~~1,529 acres
Project perimeter roads (including pullouts)	30 acres
Substation, switching station, and O&M building	12 acres
Graded areas (outside of other project features)[2]	~~106.5~~101 acres
230 kV loop-in TSPs	250 square feet
Trenching and foundations adjacent to arrays	~~12.41~~12 acres
Perimeter fencing	~~0.06~~0.2 acres
Vasquez County Road[3]	4 acres
Total	**~~1,794~~1,688.2 acres**

Notes:

[1] [1]Includes foundations, direct current trench alternating current trench, grading within the solar arrays, access corridors, and solar array work areas. Solar panels and associated electrical equipment would be installed on approximately 185,000 support post foundations. Posts would be steel I-shaped sections with a cross sectional area of 4.5 square inches each. Includes 2.33 acres of foundations for posts, inverters and transformers. ~~Includes 2.33 acres for foundations, 26.64 acres of direct current trench, 8.84 acres of alternating current trench, 205.47 acres of grading, and 1,385.72 acres of solar array work areas. Solar panels and associated electrical equipment would be installed on approximately 185,000 support post foundations. Posts would be steel I-shaped sections with a cross sectional area of 4.5 square inches each.~~

[2] Limited grading is expected to be required because of the nearly flat terrain. Grading would be required on slopes greater than 3 percent for PV power blocks. ~~Final grading plans for the project are under development; however, t~~The applicant's preferred alternative ~~proposed project~~ includes approximately ~~358~~ 352 of proposed area that would be graded: 205.47 acres for arrays, 30 acres for roads, 4 acres for Vasquez County Road, 100.53 acres for other grading areas, and 12 acres for the substation, switching station, and O&M building~~acres (205.47 acres for arrays; 30 acres for roads; 12 acres for the substation, switching station and O&M building; 4 acres for Vasquez County Road; and 106.53 acres for other grading areas) of proposed area that would be graded~~.

[3] Vasquez County Road would be replaced with a new road that would run outside of the project fence line south of Las Aguilas Creek (outside of the Valley Floor Conservation Land).

Table 2-9
Temporary Project Disturbance

Work Area Description	Total Impact
Road construction and perimeter fence buffers	72 acres
Federal crossing work areas	~~4~~ 2 acres
Temporary laydown yards	~~108~~ 105 acres
~~Construction ponds~~	~~1 acre~~
~~Restricted work areas~~	~~194 acres~~
Solar array buffer including collector lines installation	~~333~~ 286.8 acres
Total	**~~712~~ 465.8 acres**

Notes:

Road construction buffers assume approximately 10 feet to 30 feet of temporary disturbance along perimeter roads and the perimeter fence.

Temporary work areas necessary for installing crossings over federal jurisdictional waters would be outside of the ordinary high water mark (OHWM).

192.82 acres of the temporary laydown areas will be converted to On-Site Conservation Lands once project construction is complete.

~~Restricted work areas do not have work planned within the areas but vehicles may travel over them during construction if needed for access.~~

Erosion Control

A stormwater pollution prevention plan (SWPPP) outlining best management practices (BMPs) for minimizing erosion and runoff has been prepared. The following typical erosion control devices would be used:

- Sandbags, straw wattles, energy dissipaters, and similar BMP devices will be used during construction during the rainy season (October 15 to April 15) to prevent sediment-laden runoff from discharging into receiving waters
- Revegetation as soon as practicable after completion of grading to reduce sediment transport during storms
- Installation of straw bales, wattles, or silt fencing around the perimeter of graded building pads for construction during the rainy season
- Structural BMPs (e.g., grease traps, debris screens, and oil/water separators) incorporated into substation design to minimize potential for contaminated stormwater to leave the substation
- A stormwater control basin will be designed to intercept the sheet flows from respective sub-basin watershed and to attenuate the additional stormwater runoff from the project's impervious surfaces. The stormwater basin is designed to allow for full drawdown and discharge within 24 hours.

During project operation, a vegetated understory, composed of indigenous species consistent with existing vegetation, would be planted under the panels. The vegetation height would be minimized by planting slow-growing grasses native to the region and by allowing intensive sheep grazing for a short duration, described under *Fire Safety*, below.

Utilities

Electricity during construction would be obtained by a metered tap of the local ~~12~~ 15 kV power grid and from portable gasoline or diesel-powered on-site generators. As many as 30 portable generators would be used on the project site during construction. Water would be obtained from on-site wells, described under *Water Use*, below. Portable sanitary facilities would be required during construction. Wastewater would be hauled to appropriate treatment plants, such as the Hollister Domestic Wastewater Treatment Plant. Solid waste would be hauled to appropriate recycling centers or landfills. A SCADA system in the O&M building would be used for project communications. This system would allow for complete control and access to the PV panels, substation, telephone system, and all other communication systems.

Telephone and Internet services to the project site would be provided by AT&T using AT&T services located 2,000 feet south of the project site, along Little Panoche Road. AT&T's preferred method would be to install new cable

underground in the public road shoulder from the existing connection point to the project site. AT&T would route the fiber and/or copper under Little Panoche Road west using a directional bore. Once the fiber reaches the project's manhole/splice box, the applicant would install the underground conduit for all fiber within the project footprint. Fiber and/or copper may also be temporarily brought into the construction trailers located within the laydown yard.

All of AT&T's work would be contained within the existing County ROW. The AT&T fiber lines would be installed using a directional boring technique. A typical directional boring team would include three vehicles: 1) standard work vehicle (half ton pickup); 2) dump truck to hold bore pit spoils; and 3) approximately 30-foot-long flatbed truck for tools and materials with trailer-mounted bore equipment. The bore depth would range between 48 inches and 72 inches deep to avoid geologic features or biological resources but would typically stay at the minimum depth of 48 inches. The directional boring process would use manhole/splice pits placed approximately every 500 feet and are estimated to be 4 feet by 4 feet by 3 feet in size. Those manhole/splice pits would be micro-sited to avoid various features that would pose constructability issues or that would adversely impact environmental resources. AT&T would then install two 1.25-inch innerducts (a type of PVC casing material) to route fiber cables through. Four pits would be installed approximately 500 feet apart from the manhole/splice box at the project site to the existing connection point 2,000 feet to the south. All AT&T activities within this 2,000-foot segment are anticipated to take approximately three to five days. ~~Installation would include construction of a two-foot-wide by three-foot-deep trench to allow direct burial of the cable, in compliance with state and local standards.~~ Alternatively, the cable could be attached to existing wood distribution poles along the road from the existing AT&T connection point to the project site. Existing facilities would be used to bring the AT&T services to the project site, and recent biological surveys indicate the absence of any sensitive biological resources. Because of this, no impacts on sensitive habitat and sensitive biological resources are anticipated to occur from this work on private easements and public rights-of-way.

Water Use

Water would be required on-site during construction of the project, primarily for dust control and sanitary facilities. This water would be provided by pumping groundwater from the Panoche Valley Groundwater Basin, using existing water wells or new wells, into two temporary construction water holding ponds and tanks placed within the project footprint. The water from the temporary ponds would be used to water graded/excavated areas and active unpaved roadways, unpaved staging areas, and unpaved parking areas. The frequency would be based on the type of operations, soil, and wind exposure. The watering would help reduce fugitive dust accumulation, the amount of wind erosion and dust generated by exposed topsoil, the possible exposure to valley fever from dust

generated by construction and traffic, and the impacts on vegetation from fugitive dust.

Two temporary ponds are planned within the project footprint near existing or new wells. These ponds would have a combined capacity of approximately 4,433,000 gallons and would cover approximately ~~1~~ 3 acres of the project footprint. The ponds ~~either would be surrounded by species exclusion fencing to restrict access by special status species or~~ would be located in the laydown areas, which are surrounded by species exclusion fencing. Based on pumping rates expected from water wells at the site, the ponds would be filled during the night and over the course of the day to capacity and would be drained of water each day to meet the project's water needs. In addition, up to five new water wells would be drilled, if existing water wells could not be used to fill the temporary construction ponds.

Peak daily demand during construction is estimated at 1.72 acre-feet (581,250 gallons). Peak annual demand during construction is estimated at 314.87 acre-feet (102,600,000 gallons). Total construction water usage is estimated at 385.15 acre-feet (125,500,500 gallons).

Other Wastewater

A septic tank and leach field would be constructed near the O&M building. The expected flow to the septic tank and leach field is estimated to be approximately 250 gallons per day. For this level of flow, the septic tank would be sized at a minimum of approximately 750 gallons. The septic tank would conform to all federal, state, and San Benito County requirements for configuration, fittings, and approved vendors.

The septic leach field would be sized according to good engineering practice and San Benito County requirements. It would be based on percolation data obtained from tests conducted in the proposed leach field location. The leach field would be sited such that sufficient area for a future replacement leach field of equal size next to the initial leach field is available. Piping from the septic tank to the infiltration trenches would include a splitter valve to direct flows to either drain field location; piping for the initial drain field would include a level distribution box properly supported such that effluent would be distributed equally to each infiltration trench.

Landscape Design

Landscaping in disturbed areas would typically use native plant stock whose origin is close to the project area where feasible. Salvaged topsoil would be used to reestablish plant communities from the existing seed bank if available.

Erosion and sediment control measures would be implemented at revegetated areas to minimize soil movement and improve the potential for revegetation. If revegetation could not be conducted immediately following completion of construction, appropriate interim erosion control measures, as detailed in the

SWPPP, would be installed until revegetation criteria are met. Examples of interim erosion control measures are certified weed-free straw mulch, fiber rolls, and straw bale barriers.

General Safety

Emergency response plans would be developed for construction. Ongoing training would occur in accordance with Occupational Safety and Health Administration (OSHA) regulations. All emergency response plans would be developed in ~~consultation~~ coordination with the Hollister Fire Department, the San Benito County Public Health Department, and any additional local, state, or federal agencies with jurisdiction over emergency response at the project site.

Fire Safety

Vegetation at the site would be kept to a height of less than 18 inches. Short-duration intensive sheep and/or goat grazing may be used to maintain vegetation, depending on the amount of forage available on the site. The number of sheep required to appropriately graze the feed produced on the project site would vary seasonally, depending on the rainfall and temperature of each grazing season. During normal rainfall years, one to three bands of sheep would graze the project site from January to May to consume the forage produced before and during that season. Each band would consist of between 750 and 1,200 adult sheep and offspring, depending on the season. The sheep would be removed from the site the remainder of the year. The applicant would construct new sheep fencing as necessary.

Three water tanks holding approximately 20,000 gallons each would be located at existing or new well sites. These tanks would have universal adapters to enable fire trucks to refill with water at the project site.

The MPAC and Substation Building fire suppression will follow the PG&E standard, which is a Novec 1240 clean agent flooding system for fire suppression, or similar, subject to local building permit official approval. Novec fluid, manufactured by 3M, is an environmentally friendly halon replacement for use as a gaseous fire suppression agent. It is generally used in situations where water from a fire sprinkler would damage expensive equipment or where water-based fire suppression is impractical.

2.5.3 Solar Project Construction

The project solar panels would be constructed in a general clock-wise progression around the site over approximately 18 months. Construction is anticipated to begin in 2015, near the proposed substation location south of Las Aguilas Creek and west of Little Panoche Road (see **Figure 2-5**).

Nighttime construction activities on the project site would be limited to minor actions such as the following:

- Commissioning and maintenance activities to be performed when PV arrays are not energized
- Interior use of the operations and maintenance facility
- Unanticipated emergencies
- Special status species impact avoidance and minimization activities and research (e.g., giant kangaroo rat trapping and San Joaquin kit fox radio telemetry)
- Security patrols

No ground-disturbing activities (including grading, pile driving, and trenching) would take place at night. From ~~7 p.m. to 7 a.m.~~sunset to sunrise, generators within 350 feet of the project boundary would not run at 100 percent load, or would be less than 40 dBA (A-weighted decibels) at the property line. No work would be completed during severe rainstorms unless it is required, such as in the case of an imminent threat to life, necessary sensitive species work, or a significant property or construction interest. A designated biologist or biological monitor would be present during all construction activities.

Construction activities would be permitted from sunrise to sunset (according to the times published by the National Oceanic and Atmospheric Administration), as early as 5:00 a.m. to as late as 9:00 p.m., depending on the time of year.

Site Preparation

Site preparation would mainly include preconstruction biological surveys, burrow excavation, special status species relocation, road construction, intermittent stream crossings, and stormwater BMPs implementation. Project grading requirements are anticipated to result in cut-and-fill activities with no cubic yards of export. Aggregate would be imported for the perimeter roads and the substation.

Unless the PV array areas overlap with the graded area, no ground preparation such as disking, harrowing, or rolling of the land areas for array installation would be performed. For most of the project footprint, the ground under the PV arrays would not require grading or any land preparation, except for areas that are greater than ~~five~~ three percent slope. Preparing the ground beneath PV arrays would begin by trimming vegetation, if required. Approximately ~~358~~ 352 acres of the project footprint are expected to be graded.

Panel Assembly and Installation

Panel components, including the PV panels and racks, would be transported to the laydown areas by container truck. The steel rack assemblies would then be constructed at each power block location, and the PV panels would be lowered onto the racks with final fastening being performed at the power block.

A prefabricated racking system would arrive on-site to be assembled and grounded. Preassembled PV panels would arrive on-site and be placed in a staging area inside or on shipping containers. Panels would be put in place manually and secured to the rack according to vendor specifications. The rack would be populated with panels, wired in series, and connected to a DC combiner box, which would deliver DC power to the local inverters. Equipment used for system installation would include 4x4 forklifts, all-terrain vehicles, truck-mounted pile drivers, cranes, and pickup trucks.

Approximately ~~108~~ 105 acres are planned for laydown and staging. Each laydown area would be at a convenient spot for construction traffic to access from existing roads. The laydown areas would require a power source for lighting, construction trailers, and parking. There would be no hazardous substances stored on-site outside of approved containment measures.

Substation Construction

The substation would be constructed by a contractor selected by the applicant, in accordance with its engineering, procurement, and construction contract specifications.

Construction Personnel

The workforce at the project would vary based on activity at the site during the course of construction. Nighttime activities would have crews of 20 to 50 worker, and daytime crews would range from 100 to 500. There would be no on-site temporary workforce housing, and employees would be prohibited from parking recreational vehicles or trailers.

Construction Traffic

All truck traffic and deliveries, along with approximately 40 percent of personal vehicle traffic, would enter the site from the north on Little Panoche Road. In order to accommodate the increased daily traffic volume and decrease safety risks to personal traffic, the remaining personal vehicle traffic would enter the site from the west on Panoche Road. Material deliveries and other truck traffic would be limited to using Little Panoche Road. Construction of the project substation or underground utility road crossings may require temporary closure or partial closure of roadways around the project site. An approved Traffic Control Plan has been prepared and will be implemented during construction of the project; this plan is included in **Appendix H**.

Table 2-10 shows the estimated daily peak and average traffic conditions. **Table 2-11** shows the total project one-way trips and the average daily one-way trips by type of construction traffic.

Personnel Traffic

The construction workforce for the project would vary based on activity at the site during the course of construction. Crews of 20 to 50 workers for nighttime activities and 100 to 500 for daytime crews are anticipated.

Table 2-10
Estimated Daily Traffic

	Peak Trips	Average Trips
Employees	550	200
Employee daily trips	950	400
Assumed vehicle occupancy	1.2	1.2
Material delivery trips	200	120
Total daily trips	**1,150**	**520**

Table 2-11
Construction Traffic Specifications

Traffic Type	Total One-Way Trips	Average Daily One-way Trips	Trip Types[1]
Aggregate base material	10,000	15	Local
Backhaul excess cut	1,320	4	On-site
Water trucks, dust control	50,000	100	On-site
Concrete raw material	1,980	5	Local
PV panel delivery	2,250	20	Remote
Substation equipment	1,200	5	Remote
Electrical materials	3,300	15	Remote
Total	**70,050**	**164**	

[1]Local equals trips of 40 miles or less; remote equals trips of greater than 40 miles.

The origin and travel distance for workers are estimated as follows:

- 5 percent from Panoche Valley (up to 5 miles)
- 75 percent from Hollister area (approximately 45 miles)
- 20 percent from San Benito County, Santa Clara County, and Fresno County (up to 60 miles)

Delivery Traffic

Truck traffic generated by the proposed project would mainly be composed of trucks delivering solar panels, materials, and equipment to the site. A few trucks containing oversized loads would access the site but would be infrequent when compared to daily truck traffic.

Routes for trucks hauling materials and construction equipment would primarily follow the I-5 corridor to Little Panoche Road, allowing for safer travel by larger container trucks and wide-load trucks carrying heavy equipment.

Material delivery would include all components of the switching station, O&M building, fencing, PV panel components, inverters, and additional miscellaneous items. Material deliveries would originate at manufacturing sources in California and from shipping ports along California's coast. Materials are expected to be delivered via Interstate 5; smaller deliveries may arrive to the site via Hollister

or via county roads. **Table 2-12** describes the delivery truck type for each project component.

Table 2-12
Delivery Truck Type by Project Component

Project Component	Truck Type
Solar panels	Standard width 53-foot van
Inverters	Standard width 48-foot flatbed trailer
Solar racking and support steel	Standard width 48-foot flatbed trailer
Transmission poles	Standard width 48-foot flatbed trailer
Substation steel	Standard width 48-foot flatbed trailer
Substation circuit breakers	Standard width 48-foot flatbed trailer
Substation transformers	48-foot lowboy trailer with pilot cars
Auxiliary substation equipment	Standard width 48-foot flatbed trailer
Crane (35-ton)	48-foot lowboy trailer with pilot cars
Crane (60- to 100-ton)	Wide-load self-propelled trucks with 2 jib companion flat beds
Aggregate	End or side dump semi or tandem/triple dump truck
Pre-manufactured concrete	Concrete mixer

Materials would be delivered throughout construction; much of the heavy construction equipment would be delivered to the site at the start of construction and would remain on-site for the duration of construction. **Table 2-11** describes the projected number of daily truck deliveries.

On-Site Vehicle Movement During Installation

Vehicles Entering and Traversing the Site

During installation, traffic would enter the site at the specified laydown areas. Vehicle operators would travel along Little Panoche Road and Panoche Road. **Table 2-13** describes construction vehicles and equipment that would generate emissions.

Table 2-13
Construction Vehicles and Equipment

Vehicle Traffic Use	Vehicle Type	Max Weight (lbs)	Max Power (hp)	Tread Type	Frequency of Use (hrs/day)	Quantity On-Site
On-road equipment (grading and travel on main roads)	Scraper	77,800	313	Dual axle	8	1
	Grader	30,000	174	Dual axle	6	1
	Dozer	44,582	357	Tractor	6	1
	Backhoe loader	13,046	108	Dual axle	8	1
	Roller	27,340	95	Dual axle	8	1
	4,000-gallon water truck	55,000	189	Triple axle	8	1

Table 2-13
Construction Vehicles and Equipment

Vehicle Traffic Use	Vehicle Type	Max Weight (lbs)	Max Power (hp)	Tread Type	Frequency of Use (hrs/day)	Quantity On-Site
Off-road equipment (between PV power blocks and for panel installation)	Excavator	36,000	168	Tractor	8	4
	Roller	27,340	95	Dual axle	8	1
	Backhoe loader	13,046	108	Tractor	8	1
	Trencher	5,500	63	Dual axle	8	1
	Drill rig	55,000	291	Tractor	20	4
	Crane	28,800	399	Dual axle	8	1
	Forklifts	20,000	93	Dual axle	16-24	4
	Generators	n/a	549	N/a	8	Multiple
	Grader	10,000	174	Dual axle	6	1
	Plate compactor	n/a	8	Pad	8	2
	Pickup trucks	10,000	250	Dual axle	16-24	8
	Welders	n/a	45	n/a	8	2

[1]Generators to power the office complex would run 24 hours a day to power ice makers, refrigerators, and computer servers.

Roads that require a drainage crossing would be engineered to the specifications that allow for the weight of vehicles to cross without destabilizing the drainage areas. All reasonable efforts would be made to keep drainage crossings to a minimum.

2.5.4 Interconnection

Interconnection Studies

The California Independent System Operator (CAISO), the electricity grid operator in California, in combination with PG&E, the interconnecting utility, are responsible for ensuring grid reliability. These two entities are tasked with determining the transmission system impacts of the proposed project and any measures needed to ensure system conformance with utility reliability criteria.

The following interconnection studies have been completed for the project:

- Phase I 01/03/2012
- Phase II 11/05/2012
- Phase II Revised 01/17/2013
- Phase II Addendum #1 04/17/2013
- Phase II Addendum #2 05/29/2013
- Reassessment Study 09/18/2013
- Revised Reassessment Study 11/27/2013
- Large Generator Interconnection Agreement 01/09/2014

The applicant signed a large generator interconnection agreement with PG&E for the project in January 2014. This agreement confirms that the project's electricity output would be deliverable to the transmission grid; it also specifies the interconnection and network facilities that would be required to interconnect the project with the PG&E Moss Landing-Panoche 230 kV transmission line.

The applicant executed a power purchase agreement for the project in August 2014. Under this agreement, which is subject to approval by the California Public Utilities Commission, Southern California Edison is obligated to purchase and the applicant is obligated to deliver 247 MW_{AC} of power annually for 20 years beginning in 2019.

Interconnection Facilities

The proposed project would be interconnected through a loop-in from the project's switching station to the PG&E 230 kV transmission line that passes through the project site. The switching station would be constructed by the applicant, and ownership would be transferred to PG&E. The PG&E switching station would be known as the Las Aguilas Switching Station.

The primary interconnection facility for this project would be a switching station north of the existing PG&E transmission line on the project site. The switching station design details would be developed in consultation with PG&E. Four pairs of new tubular steel poles would be required: two pairs in the existing transmission right-of-way and one pair on either side of the PG&E switching station. There would be four temporary work areas to allow for construction of up to 12 approximately 135-foot-tall tubular steel poles. The exact number of TSPs would be defined once final design is complete; however, the number of poles would not exceed twelve.

All ground-disturbing work associated with the construction of the new tubular steel poles that would loop into the PG&E switching station would be performed within the project footprint. Before PG&E's installation of the tubular steel poles foundations, the applicant would perform all required clearances for biological resources. PG&E's tubular steel poles and their foundations would be installed only in areas where the ground has been prepared.

PG&E would also remove two lattice towers within the project footprint in the existing PG&E right-of-way. The tower foundations would be demolished to approximately three feet below grade. There would be an estimated three transmission line structures approximately 80 feet high connecting the generation tie line from the project substation to the project switching station.

Network Upgrades

The measures that PG&E needs to undertake to ensure system conformance with utility reliability criteria are described in detail in **Section 2.5.8**, PG&E Telecommunications Upgrades.

2.5.5 Solar Project Operations and Maintenance

The entire project is expected to be ~~fully~~ operational by the end of 2016. The project would operate for at least 30 years, with the possibility of a subsequent repowering of the project for additional years of operation.

The proposed project would operate seven days a week during daylight. Operations would consist of monitoring system status, performance, and diagnostics from the control room in the O&M building. System production forecasting and scheduling with PG&E and CAISO would also occur in the O&M building, along with operational planning. Operations would include meter reading and production reporting by the SCADA system, along with updating O&M manuals.

Operational Personnel

The full-time staff of the project is expected to consist of a site manager, electrician, technician and maintenance/wash crew, and security personnel. The operations staff would consist of up to 50 persons once construction has been completed.

Security

The project would be fenced to ensure public safety and to protect equipment from theft and vandalism. Gates would be installed at all site access roads. The applicant would provide 24-hour security at the site, along with maintenance personnel capable of responding to any upset conditions or other emergencies. Security staff would routinely traverse the site in lightweight vehicles and all-terrain vehicles. The facility would be equipped with day/night closed-circuit security cameras and human-activated motion lighting.

Maintenance

Once installation is complete and the site is fully operational, all traffic would enter the site at the gates near the switching station location off Little Panoche Road, except during an emergency event where other access points may be utilized. The facility would be restricted to O&M staff and security personnel and authorized guests. The O&M staff would use light-duty vehicles and all-terrain vehicles for traversing the site.

The PV field would be inspected periodically for degraded wires, panels, and combiner boxes and for mechanical fastener tightening. The SCADA system would also identify areas that are underperforming. Damaged or underperforming PV panels and mechanical fasteners would be replaced as required. Inverters would be checked twice annually for general component maintenance.

Water Use

During project operation, water would be used for sanitary facilities, fire suppression, and grazing livestock. In addition, to optimize performance of the proposed project, the PV panel surfaces may be washed up to twice annually during the dry season. The panel washing crew would traverse the site in a small

all-terrain vehicle, which would be fitted with a trailer containing a water tank and pump to operate a high pressure sprayer.

Operational activities would require an estimated 2.84 acre-feet of water annually, based on the current project layout. Approximately 0.05 acre-feet (16,000 gallons) would be required for the O&M facilities and fire suppression. Potable water for the O&M facilities would be piped directly from the water well closest to the O&M facility. Sheep/goat watering may require an estimated 0.35 to 0.56 acre-feet per year if there is enough forage to support grazing.

Lighting
During operation of the project, motion-sensor lighting would be used at the O&M building and substation. The lighting would consist of energy-efficient lamps that would be lit only when human activity is detected. Motion sensors would be set to avoid activation by animals. In addition to lighting, security cameras would be installed near the lighting to monitor activity. Constant low-level lighting would be required at the O&M building. This would include a single lamp source near the entrance of the building, which would be activated by a timer. All lighting would include a power switch to conserve energy when the lighting is not required.

All lighting would point downward, would be shielded to preserve dark skies, and would adhere to San Benito County's Lighting Ordinance (19.31.003-009).

2.5.6 Measures to Reduce Project Impacts

Applicant Proposed Measures
As part of the EIR process, the applicant proposed to implement specific measures to reduce the project's environmental impacts. These measures, summarized in **Table 2-14** below and described in detail in **Table C-1** in **Appendix C**, are considered part of the proposed project and are incorporated into the environmental impact analysis presented in **Chapter 3** of this EIS.

EIR Mitigation Measures
The EIR (2010) and supplemental EIR (2015) prepared by San Benito County for the Panoche Valley Solar Facility identified additional mitigation measures to reduce the impact of the proposed project on the natural and human environment. These measures, summarized in **Table 2-15** below and described in detail in **Table C-2** in **Appendix C**, were adopted as conditions of approval by San Benito County in the conditional use permitting process. Therefore, these measures are also considered part of the applicant's proposed project and are incorporated in the environmental impact analysis presented in **Chapter 3** of this EIS.

Table 2-14
Applicant Proposed Measures (APMs)

APM Number	Measure by Issue Area
	Aesthetics
APM AES-1	"Dulled" metal finish structures, and facility buildings painted in earth tones, will be used to reduce visual impacts where feasible.
APM AES-2	Construction Lighting
APM AES-3	Operation Lighting
	Agriculture
APM AG-1	Grazing sheep on the project site
APM AG-2	Allow grazing on lands covered by conservation easement created for biological resource mitigation
	Air Quality
APM AQ-1	All requirements of those entities having jurisdiction over air quality matters would be adhered to and any necessary permits for construction activities would be obtained. Open burning of construction trash would not be allowed.
APM AQ-2	The Applicant shall implement the BMPs to further reduce construction vehicle emissions (NOx, VOC, and Diesel Particulate Matter) during project construction
APM AQ-3	The Applicant shall reduce fugitive dust emissions during construction through implementation of the following best management practices to be shown on grading and building plans
	Biological Resources
APM BIO-1	All construction vehicle movement outside the project area would normally be restricted to pre-designated access, contractor acquired access, or public roads.
APM BIO-2	The areal limits of construction activities would normally be predetermined, with activity restricted to and confined within those limits. No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate survey or construction activity limits.
APM BIO-3	In construction areas where recontouring is not required, vegetation would be left in place wherever possible and original contour would be maintained to avoid excessive root damage and allow for regrowth.
APM BIO-4	Prior to construction, all supervisory construction personnel would be instructed on the protection of cultural and ecological resources.
APM BIO-5	Mitigation measures that will be developed during the consultation period under Section 7 of the Endangered Species Act will be adhered to as specified in the Biological Opinion of the US Fish and Wildlife Service.
APM BIO-6	Project boundary fencing will be constructed using chain link approximately 6 feet in height. The bottom of the chain link fencing will be elevated off the surface of the ground approximately 5-6 inches to allow for wildlife movement across the project site.
APM BIO-7	In construction areas where ground disturbance is significant or where recontouring is required, surface restoration would occur as required by the landowner or land management agency as part of decommissioning.

Table 2-14
Applicant Proposed Measures (APMs)

APM Number	Measure by Issue Area
APM BIO-9	Protocol surveys were completed for the entire Project Footprint, and additional preconstruction surveys will be completed within 30 days of ground disturbance for each construction area. Monitors will be present during construction activities.
APM BIO-11	The BNLL Protection Plan will be implemented at the site for construction activities.
APM BIO-12	Preserve Undisturbed Onsite Lands.
APM BIO-13	On-site Conservation Measures for Blunt-Nosed Leopard Lizard
APM BIO-14	Off-site Conservation Measures for Blunt-Nosed Leopard Lizard
APM BIO-15	On-site Conservation Measures for Giant Kangaroo Rat
APM BIO-16	Off-site Conservation Measures for Giant Kangaroo Rat
APM BIO-17	On-site Conservation Measures for San Joaquin Kit Fox
APM BIO-19	Off-site Conservation Measures for San Joaquin Kit Fox
APM BIO-20	Employee Education Program
APM BIO-21	List of Best Management Practices
APM BIO-22	Conduct a BNLL education program (e.g., tailgate briefing) for all project personnel
APM BIO-24	A biological monitor(s) shall be present while ground-disturbing activities are occurring
APM BIO-25	Biological monitors are empowered to order cessation of activities if take avoidance and/or mitigation measures are violated
APM BIO-27	The Applicant shall appoint a representative who will be the contact source for any employee or contractor who inadvertently kills or injures a BNLL or who finds a dead, injured, or entrapped individual BNLL
APM BIO-28	Any contractor, employee(s), or other personnel who inadvertently kills or injures a BNLL shall immediately report the incident to their representative
APM BIO-29	To prevent inadvertent entrapment of protected species, all open holes, steep-walled holes, or trenches more than 2 feet deep shall be covered at the close of each working day
APM BIO-30	All spills of hazardous materials shall be cleaned up immediately in accordance with the Spill Prevention Plan
APM BIO-31	Pets are prohibited at the PVSF
APM BIO-32	Firearms are prohibited at the PVSF
APM BIO-33	All food-related trash, such as wrappers, cans, bottles, bags, and food scraps shall be disposed of daily in containers with secure covers and regularly removed from PVSF
APM BIO-34	Use of rodenticides and herbicides in project areas is prohibited with the exception of those applied near buildings/critical facilities.
APM BIO-35	All project-related vehicles shall observe a speed limit of 15 mph or less on all except as posted on State and County highway/roads
APM BIO-36	Motorized vehicles are prohibited within occupied BNLL habitat

Table 2-14
Applicant Proposed Measures (APMs)

APM Number	Measure by Issue Area
APM BIO-37	Appropriate measures shall be undertaken to prevent unauthorized vehicle entry to off-road survey routes in sensitive habitat areas. Signing will be the preferred method to discourage use
APM BIO-38	Project vehicles shall be confined to existing access routes or to specifically delineated areas (i.e., areas that have been surveyed). Otherwise, off-road vehicle travel is not permitted.
APM BIO-39	Upon completion of any project component, all areas that are significantly disturbed and not necessary for future operations shall be stabilized to resist erosion, and re-vegetated and re-contoured if necessary, to promote restoration of the area to pre-disturbance conditions.
	Cultural Resources
APM CR-1	Prior to construction, all supervisory construction personnel would be instructed on the protection of any known or unknown cultural and paleontological resources
	Geology
APM GEO-2	In order to avoid expansive clay and mitigate possibly disturbed surface soil, overexcavation of building and equipment pads will be considered as required by the geotechnical report.
	Noise
APM N-1	Compliance with the San Benito County's noise standards
	Hazards and Hazardous Materials
APM HAZ-1	Hazardous materials storage requirements
APM HAZ-2	Prior to construction and mounting of the PV panels, each panel will be checked for cracks or other defects to avoid the possible exposure of toxic metals on the surface
APM HAZ-3	Sheep grazing under the panels will help to keep pasture growth controlled, as necessary.
APM HAZ-4	The applicant shall ensure that any animals grazing on the site during construction activity pursuant to a lease or other agreement shall be properly vaccinated in accordance with local custom and practice for San Benito County and Panoche Valley.
APM HAZ-6	Prior to energizing the project, the Applicant will install electrical safety signage on all solar arrays in the immediate vicinity of wiring and electrical equipment using weather-resistant and fade-proof materials as required by applicable electrical code
APM HAZ-7	The Applicant proposes to decommission the site at the end of the useful life of the project
	Population and Housing
APM PH-1	At least thirty days prior to commencing construction, the Applicant will provide construction contractors with information, including general information on the facility, telephone numbers, addresses and contact information, on temporary housing opportunities

Table 2-14
Applicant Proposed Measures (APMs)

APM Number	Measure by Issue Area
	Public Services and Facilities
APM PSU-1	If damaged or destroyed by construction activities, fences and gates would be repaired or replaced to their original pre-disturbed condition as required by the applicable landowner or the land management agency
APM PSU-2	During operation of the solar farm, the project site would be maintained free of trash
APM PSU-3	During construction and operation of the solar farm, all disposable materials that are considered recyclable shall be separated and properly recycled or reused
APM PSU-4	Hazardous materials shall not be drained onto the ground or into streams or drainage areas
	Water Resources
APM WR-1	Water facilities would be repaired or replaced to their pre-disturbed condition
APM WR-2	In construction areas where ground disturbance is significant or where recontouring is required, surface restoration would occur as required by the landowner or land management agency as part of project decommissioning
APM WR-3	Roads would be built as near as possible to right angles to the streams and washes or as required by project permits
APM WR-4	The Applicant would limit the panel washing to two washings per year

Table 2-15
EIR Mitigation Measures

Mitigation No.	Measure by Issue Area
	General
EM-1	Provide funding for environmental monitoring
EM-2	Provide documentation for monitoring
	Aesthetics
AE-1.1	Reduce night lighting impacts
BR-G.3	Develop and implement a Habitat Restoration and Revegetation Plan
AE-3.1	Treat surfaces of project structures and buildings, Develop Treatment Plan, Report to San Benito County
	Agriculture
BR-G.3	Development and implementation of a Habitat Restoration and Revegetation Plan
BR-1.2	Develop and implement a Grazing Plan for the project site
BR-G.5	Create permanent conservation easements as compensation for impacts to biological resources
BR-G.6	Develop and implement ~~Habitat~~ Wetland Mitigation and Monitoring Plan and Habitat Management Plan for mitigation lands
AG-2.1	Create agricultural conservation easement(s)

Table 2-15
EIR Mitigation Measures

Mitigation No.	Measure by Issue Area
LU-1.1	Establish construction liaison
LU-1.2	Provide advance notification of construction
LU-1.3	Provide quarterly construction updates
AQ-1.1	Reduce fugitive dust
BR-1.1	Prepare and implement a Weed Control Plan
BR-1.2	Develop and implement a Grazing Plan for the project site
BR-G.5	Create permanent conservation easements as compensation for impacts to biological resources
WR-1.1	Groundwater Monitoring and Reporting Plan
WR-1.2	Aquifer Testing and Well Interference Analysis
WR-6.1	Accidental spill control and environmental training
WR-6.2	Store fuels and hazardous materials away from sensitive water resources
WR-6.3	Maintain vehicles and equipment
	Air Quality
AQ-1.1	Reduce fugitive dust
AQ-1.2	Designate a dust complaint monitor
	Biological Resources
BR-G.1	Implement a Worker Environmental Education Program
BR-G.2	Implement Best Management Practices (BMPs)
BR-G.3	Develop and implement a Habitat Restoration and Revegetation Plan, Soil Restoration Plan, Plant Restoration and Revegetation Plan, and a Monitoring Plan
BR-G.4	Implement biological monitoring of construction activities
BR-G.5	Create permanent conservation easement(s) as compensation for impacts to biological resources
BR-G.6	Develop and implement Wetland Mitigation and Monitoring Plan and Habitat Management Plan for mitigation lands
BR-1.1	Prepare and implement a Weed Control Plan
BR-1.2	Develop and implement a Grazing Plan for the project site
AQ-1.1	Reduce fugitive dust
BR-3.1	Conduct pre-construction surveys for State and Federally Threatened, Endangered, Proposed, Petitioned, and Candidate plants and implement avoidance measures
BR-6.1	Conduct pre-construction surveys for nesting and breeding birds and implementation of avoidance measures
BR-7a.1	Impacts to all potential breeding habitat for western spadefoot toad shall be avoided to the extent feasible
BR-7a.2	Conduct pre-construction surveys for San Joaquin coachwhip and coast horned lizard and implement avoidance measures

Table 2-15
EIR Mitigation Measures

Mitigation No.	Measure by Issue Area
BR-7b.1	Conduct pre-construction surveys for non-breeding birds designated as California Species of Special Concern
BR-7c.1	Conduct pre-construction surveys for short-nosed kangaroo rat, San Joaquin pocket mouse, and Tulare grasshopper mouse and implementation of avoidance measures
BR-8.2	Avoid disturbance to ephemeral pools occupied by vernal pool fairy shrimp to the maximum extent practicable, and mitigate for any unavoidable impacts
BR-8.3	Avoid seasonal depressions and known waterbodies
BR-9.1	Conduct pre-construction surveys for California tiger salamander and implement avoidance measures
BR-10.1	Conduct pre-construction surveys for blunt-nosed leopard lizard, implement avoidance measure and implement protective procedures if a blunt-nosed leopard lizard is detected on the project site, establish movement corridors to allow movement of isolated blunt-nosed leopard lizards to and from areas of greater population density.
BR-12.2	Avoid and report California condors
BR-13.1	Focused pre-construction burrowing owl surveys and implementation of avoidance measures
BR-14.1	Implement Avian Power Line Interaction Committee guidelines (APLIC)
BR-14.2	Prepare and Implement an Avian Conservation Strategy and Eagle Conservation Plan
BR-15.1	Survey pre-construction maternity colony or hibernaculum for sensitive bats
BR-15.2	Provide substitute roosting habitat
BR-15.3	Exclude bats prior to eviction from roosts
BR-15.4	Implement management recommendations at known bat roosts
BR-16.1	Conduct focused pre-construction giant kangaroo rat burrow/precinct surveys and avoid
BR-16.2	Minimize impacts of foundation support installations
BR-17.1	Conduct pre-construction San Joaquin antelope squirrel surveys and implement avoidance measures
BR-18.1	Conduct focused pre-construction surveys for American badger surveys and implementation of avoidance measures
BR-19.1	Conduct focused pre-construction San Joaquin kit fox surveys and implementation of avoidance measures
BR-22.1	Fence temporary pond to exclude wildlife
BR-23.1	Create conservation easement on all project areas retired from the development footprint
BR-16.3	Preserve, manage, and maintain giant kangaroo rat habitat corridors across the project footprint

Table 2-15
EIR Mitigation Measures

Mitigation No.	Measure by Issue Area
	Cultural and Paleontological Resources
CR-2.1	Conduct cultural resource monitoring during construction
CR-2.2	Treat previously unidentified archaeological resources discovered during construction
CR-2.3	Inadvertent discovery of human remains
CR-2.4	Implement workers environmental awareness program
PA-1.1	Implement site-specific paleontological recovery
PA-1.2	Monitor grading and excavation for unknown and accidentally discovered paleontological resources
	Geology, Mineral Resources, and Soils
GE-4.1	Implement Geotechnical Report recommendations
	Hazards and Hazardous Materials
HZ-5.1	Cease work during Red Flag Warning
PS-1.1	Develop and implement service agreement with San Benito County Fire Department
HZ-7.1	Prohibit standing water
HZ-7.2	Protect Workers and Public from Valley Fever
	Land Use and Recreation
LU-1.1	Establish construction liaison
LU-1.2	Provide advance notice of construction
LU-1.3	Provide quarterly construction updates
	Noise
NS-1.1	Shield construction staging areas
NS-1.2	Implement noise-reducing features and practices for construction noise
NS-1.3	Provide advance notice of construction
NS-1.4	Limit pile driving activities
BR-16.2	Minimize impacts of foundation support installations
NS-2.1	Limit decommissioning activities to daytime
NS-4.1	Locate PV inverters and transformers away from the project's property line
NS-5.1	Limit panel washing activities
	Public Services, Utilities, and Service Systems
PS-1.1	Develop and implement service agreement with firefighting entities
	Transportation and Circulation
TR-1.1	Prepare and implement Traffic Control Plan
TR-1.2	Rehabilitate, protect and monitor roadway pavement, bridges and culverts
TR-1.3	Repair roadway damage
TR-1.4	Ensure Traffic Safety

Table 2-15
EIR Mitigation Measures

Mitigation No.	Measure by Issue Area
	Water Resources
WR-1.1	Groundwater Monitoring and Reporting Plan
WR-1.2	Aquifer Testing and Well Interference Analysis
WR-6.1	Accidental spill control and environmental training
WR-6.2	Store fuels and hazardous materials away from sensitive water resources
WR-6.3	Maintain vehicles and equipment

2.5.7 Mitigation Lands

The applicant has proposed conservation of 24,618 acres of on-site and adjacent off-site mitigation lands to address the proposed project's impacts on biological and grazing resources. These lands consist of the following~~Within and next to the project footprint, 2,514 acres would consist of undeveloped Valley Floor Conservation Lands. The adjacent off-site mitigation lands, depicted on **Figure 2-5**, consist of the following two areas~~:

- Valley Floor Conservation Lands—2,514 acres interspersed throughout and next to the project footprint that would be left undisturbed; this area includes wildlife movement corridors and wildlife avoidance areas in on-site drainages and 100-year floodplains, as well as open space
- On-site Conservation Lands—442 acres contiguous with the project footprint that would be left undisturbed; this area includes wildlife movement corridors, wildlife avoidance areas, and open space
- Valadeao Ranch Conservation Lands—10,772 acres of rangeland north, northwest, and east of the project footprint
- Silver Creek Ranch Conservation Lands—10,890 acres of rangeland southeast of the project footprint
- ~~The 10,772-acre Valadeao Ranch, which is north, northwest, and east of the project site~~
- ~~The 10,890-acre Silver Creek Ranch, which is southeast of the project site~~

The Silver Creek Ranch was specifically identified by the USFWS in its Recovery Plan for Upland Species of the San Joaquin Valley (1998) as an area with high habitat value for many of the special status species covered by the plan.

Through continued consultation with CDFW, the applicant has committed to securing 1,000 acres of Additional Conservation Lands. These lands are to be

located within the Panoche Valley and will be approved in advance in writing by CDFW. As an alternative to the purchase and permanent protection and management of the 1,000 acres of Additional Conservation Lands, the Applicant may elect to purchase one or more conservation easements over 1,500 acres of conservation lands in the Panoche Valley to be approved in advance in writing by CDFW. These lands shall be high-quality, in-kind habitat for giant kangaroo rat. The applicant is required to provide security for the acquisition and long-term management of the Additional Conservation Lands prior to the start of construction.

With the addition of the Additional Conservation Lands, a total of 25,618 acres of conservation lands would be preserved in perpetuity as part of the ~~proposed project~~ applicant's preferred alternative.

On-site and off-site mitigation lands would be preserved in perpetuity, in accordance with conservation easements to be developed in coordination with county, state, and federal resource agencies, including the CDFW and USFWS. The on-site and adjacent off-site conservation lands and the Additional Conservation Lands would offset impacts on wildlife species and associated habitat impacted by construction of the applicant's preferred alternative.

The management actions on conservation lands proposed by the applicant in the biological assessment it submitted to the USFWS include the following:

- ~~The~~ Portions of the perimeter of the conservation lands will be fenced to exclude unauthorized access. If new fencing is installed, it will be designed with at least three-strand barbed wire, with ~~a fourth~~the bottom strand of smooth wire at least eight inches above the ground. The fencing design, which should be consistent with local BLM guidelines, would reduce potential injury to wildlife and clarify Conservation Land boundaries to the public. Signs should be placed on boundary fencing next to public roads or property accessible by the public at 150- to 500-foot intervals. These signs would state that entry without access permission is prohibited and that the lands are protected.
- Litter and illegally dumped wastes should be removed from the property in the first year of establishing the conservation easement, and at least annually thereafter. The initial cleanup areas will include at least the sites identified in the Wetland Mitigation and Monitoring Plan, included in **Appendix H** of the Final EIS. Approximately 0.096 acre of impacts to waters of the U.S. may occur as a result of enhancement projects on the conservation lands~~during the initial baseline survey~~.
- Any previously disturbed areas that are not needed for long-term maintenance, landowner or lessee access, grazing, or other uses should be restored to blend into the surrounding habitat. A

revegetation specialist with experience restoring western San Joaquin Valley plant communities will assess individual sites to determine restoration methods and appropriate planting procedures and species. If restoration is determined to be warranted, methods will follow the Habitat Restoration and Revegetation Plan that has been developed for the site.

- Actions will be implemented that facilitate regional connectivity for the special status species by enhancing corridors and connected portions of the conservation lands. Implementation will include habitat enhancement and restoration of former agricultural lands in the conservation lands and minimization of new roads and facilities near "pinch points" in the connected conservation lands and adjacent protected properties.
- A sufficient population level of special status species should be provided, on average over the long term, to fully mitigate for the numbers taken during project construction. When needed, habitat should be enhanced to increase population levels, as described below; are at minimum, these would be the number of species taken during project construction.

Specific requirements for maintaining the conservation lands are included in the ~~conservation management plan,~~ Habitat Management Plan, Habitat Restoration and Revegetation Plan, Wetland Mitigation and Monitoring Plan, and ~~noxious Weed and invasive plant~~ Weed Control Plan. These plans are considered part of the ~~proposed project~~applicant's preferred alternative evaluated in **Chapter 3** of the EIS. Plans that have been submitted to a reviewing agency, whether in draft or final form, are included in **Appendix H** of the Final EIS.

2.5.8 PG&E Telecommunications Upgrades

CAISO, the electricity grid operator in California, in combination with PG&E, the interconnecting utility, are responsible for ensuring grid reliability. They determine the transmission system impacts of the proposed project and any measures needed to ensure system conformance with utility reliability criteria.

CAISO, in coordination with PG&E, conducted an interconnection reassessment study dated September 18, 2013, and a revised study dated November 27, 2013, in accordance with CAISO Tariff Appendix DD, Generator Interconnection and Deliverability Allocation Procedures. The studies identified system upgrades necessary to support interconnection of the project to the electrical grid; these upgrades, shown on **Figure 2-11** would provide primary and secondary telecommunication services to allow for data transmission between the project and the electrical grid. **Figure 2-12** shows the interconnection facilities between the proposed project and the existing transmission line.

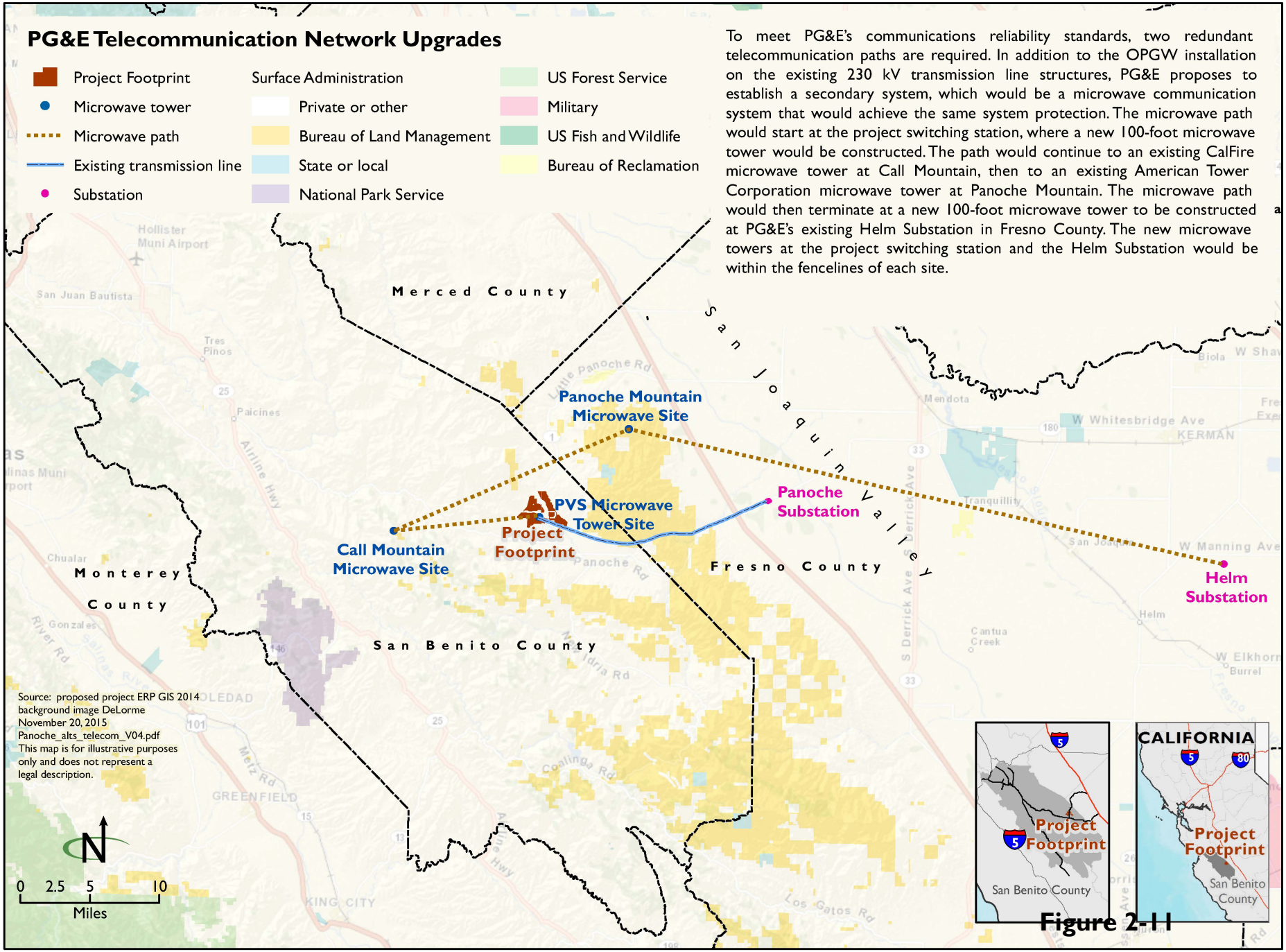

PG&E Telecommunication Network Upgrades
Project Footprint
Microwave tower
Microwave path
Existing transmission line
Substation
Surface Administration
Private or other
Bureau of Land Management
State or local
National Park Service
US Forest Service
Military
US Fish and Wildlife
Bureau of Reclamation
To meet PG&E's communications reliability standards, two redundant telecommunication paths are required. In addition to the OPGW installation on the existing 230 kV transmission line structures, PG&E proposes to establish a secondary system, which would be a microwave communication system that would achieve the same system protection. The microwave path would start at the project switching station, where a new 100-foot microwave tower would be constructed. The path would continue to an existing CalFire microwave tower at Call Mountain, then to an existing American Tower Corporation microwave tower at Panoche Mountain. The microwave path would then terminate at a new 100-foot microwave tower to be constructed at PG&E's existing Helm Substation in Fresno County. The new microwave towers at the project switching station and the Helm Substation would be within the fencelines of each site.
Merced County
San Joaquin Valley
Panoche Mountain Microwave Site
Panoche Substation
PVS Microwave Tower Site
Project Footprint
Call Mountain Microwave Site
Helm Substation
Monterey County
Fresno County
San Benito County
Source: proposed project ERP GIS 2014
background image DeLorme
November 20, 2015
Panoche_alts_telecom_V04.pdf
This map is for illustrative purposes only and does not represent a legal description.
0 2.5 5 10
Miles
CALIFORNIA
Project Footprint
San Benito County

Figure 2-11

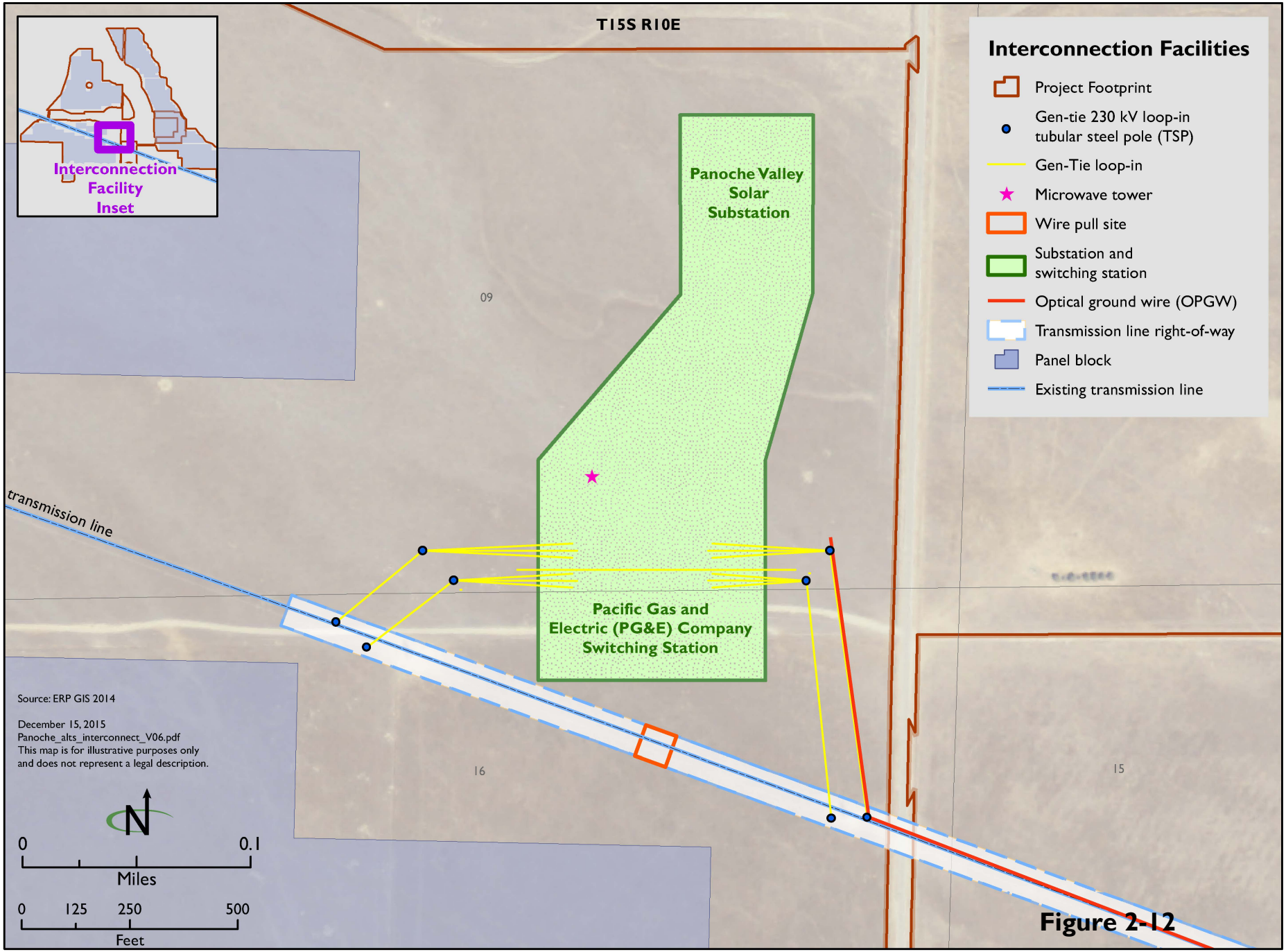

T15S R10E
Interconnection Facility Inset
Panoche Valley Solar Substation
Pacific Gas and Electric (PG&E) Company Switching Station
transmission line
09
16
15
Interconnection Facilities
Project Footprint
Gen-tie 230 kV loop-in tubular steel pole (TSP)
Gen-Tie loop-in
Microwave tower
Wire pull site
Substation and switching station
Optical ground wire (OPGW)
Transmission line right-of-way
Panel block
Existing transmission line
Source: ERP GIS 2014
December 15, 2015
Panoche_alts_interconnect_V06.pdf
This map is for illustrative purposes only
and does not represent a legal description.
N
0
0.1
Miles
0
125
250
500
Feet

Figure 2-12

PG&E Primary Telecommunication Upgrades (Optical Ground Wire)

PG&E proposes to install new optical ground wire (OPGW) along 17 miles of its existing Panoche-Moss Landing 230 kV transmission line, between the new substation on the project site and the existing PG&E Panoche Substation in Fresno County. Where the existing 230 kV transmission line crosses under two existing 500 kV transmission lines about 1.5 miles west of the I-5 crossing, PG&E would install All-Dielectric Self-Supporting (ADSS) fiber for approximately 4,650 feet on approximately twelve existing wood distribution poles located to the north of the 230 kV transmission line. OPGW and ADSS would provide telecommunications services between electrical substations and generating facilities or other substations and would provide the primary telecommunication service for the proposed project.

The OPGW would replace the existing shield wire in the transmission line. It would be installed on the existing transmission line towers, which would require minimal modification. OPGW performs the same function as shield wire, which is to protect the line by providing a path to ground, as well as containing optical fibers that can be used for telecommunications.

Of the 17 miles of shield wire that would be replaced with OPGW, about 7 miles are in San Benito County and 10 miles are in Fresno County. About 6 miles of the line (in both Fresno and San Benito Counties) are on federal lands administered by the Bureau of Land Management (BLM); this portion of the transmission line corridor runs through the Panoche Hills east of the project site and west of Interstate 5, south of the Panoche Hills South Wilderness Study Area. Work in this area requires an SF-299 right-of-way permit from the BLM. PG&E has submitted an application for this permit, and the BLM is currently processing the application.

PG&E would also have telecommunications between the Moss Landing, Coburn, and Panoche Substations and the project. These substations are shown on the map inset of **Figure 2-11**. In addition to installing OPGW from the Panoche substation, PG&E would use power line carrier (PLC) and leased line systems to connect the remaining two substations at Moss Landing and Coburn; implementing these systems would involve minor modifications to the switchyards at Moss Landing and Coburn substations. All modifications would occur within the fence line of the existing disturbed substations.

Construction

PG&E proposes to replace the shield wire and install the OPGW on the north side and at the top of the 230 kV towers. The OPGW comes on reels that hold approximately 23,000 feet of cable, so an estimated 12 temporary pull/reel and splice sites would be established along the existing 17-mile transmission line corridor. Each splice and pull/reel site would require an approximate 75-foot by 75-foot work area between the tower sites within the existing transmission corridor right-of-way.

The OPGW installation would be completed in approximately 12 to 16 weeks; at any one location the construction would take between 2 and 3 weeks. Existing roads and access along the transmission line would be used to install the OPGW, and PG&E would use the same methods when maintaining the electrical system.

The locations of the pull/reel sites have been identified through a combination of helicopter and ground surveys and a review of aerial imagery. The criteria used in selecting the final pull/reel sites were as follows:

- Accessibility for vehicles
- Presence of flat or nearly flat land next to existing transmission line route for equipment set-up
- Existing land use
- Absence of or minimal habitat for sensitive species
- Absence of resources that would restrict work

Preparation of the temporary pull/splice sites would require some minor ground disturbance. Minor structural modifications would also be made to each of the transmission towers to allow splice boxes to be mounted where the sections of OPGW would be spliced (every three to five miles). The pull/reel sites and transmission towers would be accessed generally along existing unimproved roads or improved unsurfaced or surfaced roads that lead to many of the towers; no new roads would be constructed. Helicopters would be used to place materials at the point of installation for towers inaccessible by road.

At each of the 75 existing towers along the 17-mile 230 kV transmission line route, minor upgrades to the steel attachments would be required to accommodate installation of the OPGW. These upgrades would include only overhead work on the existing tower, such as replacing the gode peaks with a pulley to accommodate the OPGW. The existing static wire would then be used to pull the new OPGW through each tower pulley. Existing roads or helicopters would be used to provide access to the sites to fashion the attachments needed on each tower.

Construction would be completed using a combination of helicopter and ground crews. Helicopters would be used to transport electrical workers to the towers, to deliver materials, and to assist in pulling the OPGW from tower to tower. Approximately four 150-foot by 100-foot landing zones would be constructed approximately every five miles using means similar to pull sites. Establishing these landing zones would involve minimal temporary ground disturbance, and the zones would facilitate the use of helicopters and reduce overall impacts associated with the work. Landing zones would primarily be used for staging materials, picking up and transporting electrical personnel and equipment, and refueling helicopters.

Temporary guard structures. Overhead crossings of public roadways or existing transmission or distribution lines would require the use of approximately eleven temporary guard structures at seven crossings. The structures would be designed to prevent tools or materials from falling into the roadway or utility. Guard structures typically consist of two to four wooden poles and cross beams attached between the poles. They are generally installed in pairs with a net strung between them, but in some cases a net would not be required. A PG&E line truck would be used to auger and set the wooden poles. For roadway crossings, the temporary poles would be placed in or next to the disturbed road shoulder in an approximately 75-foot by 75-foot area. No grading or vegetation removal is anticipated during installation of the guard structures. Guard structure poles would be removed following OPGW installation, and the holes would be backfilled.

Crossing of 500 kV lines. The existing 230 kV transmission line crosses under two existing 500 kV transmission lines, about 1.5 miles west of the Interstate 5 crossing. At this crossing, PG&E would splice in all-dielectric self-supporting (ADSS) fiber optic cable from the 230 kV towers to the east and west sides of the 500 kV transmission line corridor and then attach the ADSS to wood poles. The ADSS would replace the OPGW for this 4,650-foot section.

To support the added weight of the ADSS, PG&E would replace twelve wood poles with twelve new wood poles in the same locations. These poles are within the PG&E right-of-way on agricultural land. To replace the poles, a 30-foot by 40-foot work area would be required to accommodate one crew truck and a trailer truck to bring each pole to the site and a line truck to auger a hole about eight feet deep and two feet wide. In addition, ADSS would be trenched from the easternmost 230 kV tower along an existing dirt road to the first distribution pole location.

Site Disturbance

Table 2-16 summarizes the total ground disturbance associated with the proposed PG&E primary telecommunications upgrades.

Table 2-16
Primary Telecommunications Site Disturbance

Work Area Description	Total Impact (acres)
Temporary pull/splice sites (12–75 feet x 75 feet)	1.54
Temporary landing zones (4–150 feet x 100 feet)	1.38
Temporary guard structures (11–75 feet x 75 feet)	1.42
Wood pole temporary work areas (12–30 feet x 40 feet)	0.36
ADSS underground temporary work area (1,200 feet x 37.5 feet)	1.03
Total	**5.73 acres**

PG&E would implement avoidance and minimization measures for sensitive species and their habitat, as required by a state incidental take permit (SITP) approved by the CDFW and the project's biological opinion issued by the USFWS.

PG&E Secondary Telecommunication Upgrades (Microwave System)

To meet PG&E's communications reliability standards, two redundant telecommunication paths are required. In addition to the OPGW installation on the existing 230 kV transmission line structures, PG&E proposes to establish a secondary system, which would be a microwave communication system that would achieve the same system protection.

The microwave path would start at the project switching station, where a new 100-foot microwave tower would be constructed. The path would continue to an existing CAL FIRE microwave tower at Call Mountain, then to an existing American Tower Corporation microwave tower at Panoche Mountain. The microwave path would then terminate at a new 100-foot microwave tower to be constructed at PG&E's existing Helm Substation in Fresno County (see **Figure 2-11**). The new microwave towers at the project switching station and the Helm Substation would be within the fence lines of each site. The proposed tower at the project switching station would be a self-supporting, three-legged Valmont tower, while the proposed tower at Helm Substation would be a self-supporting, four-legged Valmont tower (see **Figure 2-13**).

A Federal Aviation Administration (FAA) study, if required, would be performed before construction of the microwave towers to determine appropriate lighting to comply with FAA requirements. PG&E would comply with the Federal Communications Commission (FCC) approval process and FAA filings and approval, including installing FAA-lights on the microwave towers, as required.

Construction

Distribution power already exists at microwave tower sites, so no new poles would be installed to provide power. In addition, existing roads would be used to access the proposed microwave tower sites, so no new roads would be constructed to bring equipment and materials to the work site.

Site Disturbance

Table 2-17 summarizes the total ground disturbance associated with the PG&E secondary telecommunications upgrades.

Table 2-17
Secondary Telecommunications Site Disturbance

Work Area Description	Total Impact
Microwave site permanent work area for new towers (2–100 feet x 100 feet)	0.46 acre
Microwave Towers (2–100 feet x 100 feet)	0.46 acre
Total	**0.92 acre**

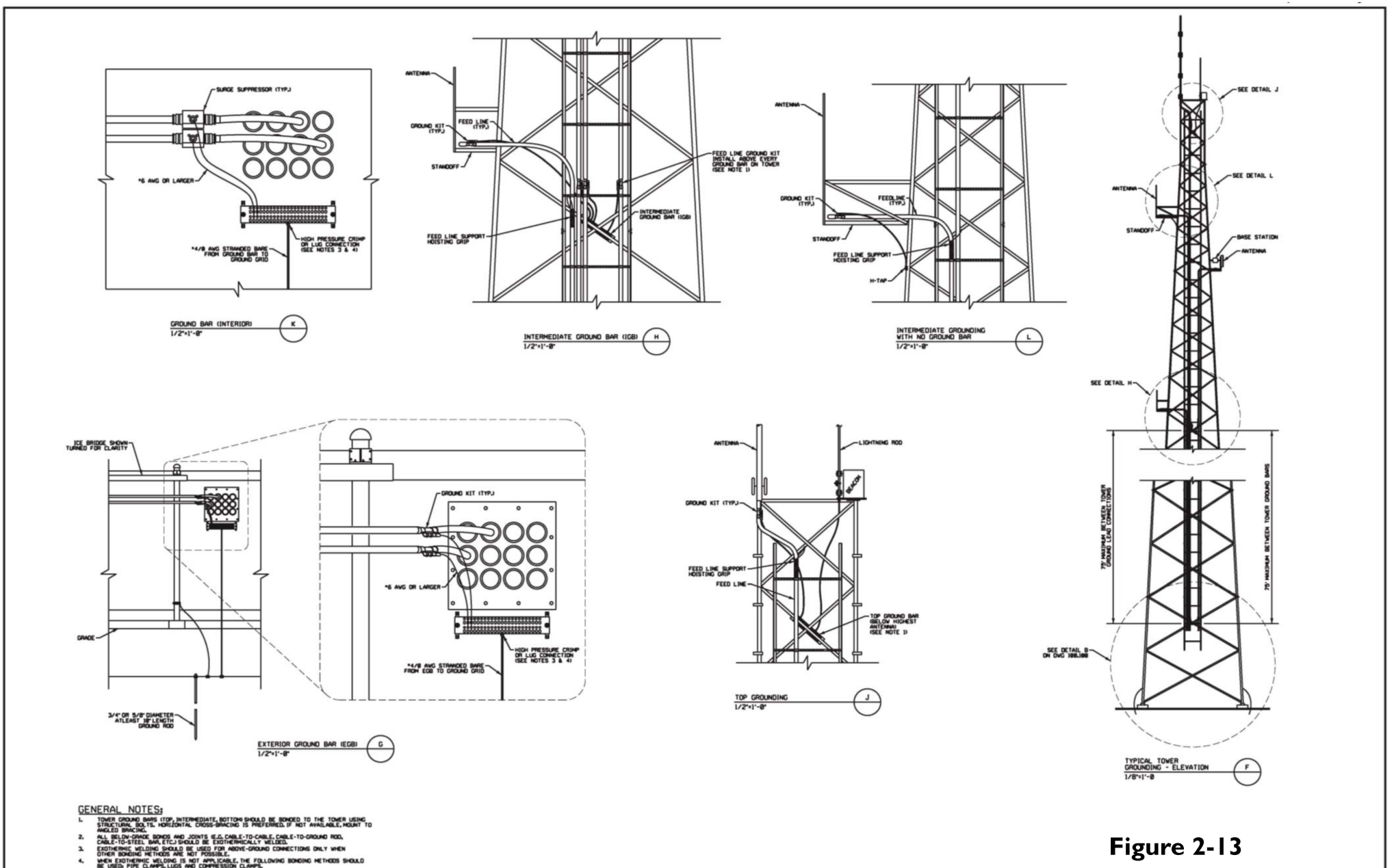


Figure 2-13

Microwave Tower Design

Avoidance and Minimization Measures

PG&E has committed to avoidance and minimization measures during construction for the proposed telecommunication network upgrades. These measures are summarized in **Table 2-18** below and contained in **Table C-3** in **Appendix C**.

Table 2-18
PG&E Avoidance & Minimization Measures (AMMs)

AMM Number	Measure by Issue Area
	Aesthetics
AMM AES-1	Treat structure surfaces
	Air Quality
AMM AQ-1	Minimize fugitive dust
AMM AQ-2	Limit equipment idling
	Biological Resources
AMM BR-PGE-1	Worker Environmental Training
AMM BR-PGE-2	Park vehicles and equipment in disturbed areas
AMM BR-PGE-3	Work during daylight hours
AMM BR-PGE-4	Minimize disturbance from vehicle access
AMM BR-PGE-5	Implement a speed limit
AMM BR-PGE-6	Trash dumping, firearms, open fires, hunting, and pets will be prohibited at the work activity sites.
AMM BR-PGE-7	Fire prevention
AMM BR-PGE-8	Fire prevention during "red flag" conditions
AMM BR-PGE-9	Restoration and erosion control
AMM BR-PGE-10	Special-status amphibians and reptiles
AMM BR-PGE-11	Avoid giant kangaroo rat and San Joaquin antelope squirrel
AMM BR-PGE-12	Avoid San Joaquin kit fox and American badger dens if possible
AMM BR-PGE-13	Exclusion zones for blunt-nosed leopard lizard
AMM BR-PGE-14	Report dead or injured listed species
AMM BR-PGE-15	Exclusion zones for special-status plants.
AMM BR-PGE-16	Conduct preconstruction surveys for active Swainson's hawk nests and implement avoidance measures if necessary
AMM BR-PGE-17	Conduct preconstruction surveys and avoidance of active western burrowing owl burrows
AMM BR-PGE-18	Wetland and Other Waters Avoidance and Minimization
	Cultural Resources
AMM CR-1	Pre-construction worker cultural resources training
AMM CR-2	Cultural resource avoidance
AMM CR-3	Cultural construction monitoring
AMM CR-4	Unanticipated discoveries of cultural resources

Table 2-18
PG&E Avoidance & Minimization Measures (AMMs)

AMM Number	Measure by Issue Area
AMM CR-5	Unanticipated discovery of human remains
	Hazards
AMM HAZ-1	Proper storage and disposal of waste and hazardous materials
AMM HAZ-2	Curtail work during red flag conditions
AMM HAZ-3	Fire season preparedness
AMM HAZ-4	Reduce Risk for Valley Fever
	Transportation and Circulation
AMM TR-1	Develop and Implement Traffic Control Plan
	Water Resources
AMM WR-1	Hazardous material spill prevention and response plan

PG&E would implement measures where practicable and physically possible and where they will not conflict with other regulatory obligations or safety considerations; work activities will be prohibited or greatly restricted within restricted activity zones. However, vehicle operation on existing roads and foot travel will be permitted. A qualified biologist will monitor the work activities near flagged exclusion and restricted activity zones. Within 60 days after work activities have been completed at a given worksite, all staking and flagging will be removed.

2.6 ALTERNATIVE B (ON-SITE ALTERNATIVE)

Under Alternative B, the applicant would construct the proposed Panoche Valley Solar Facility and PG&E would perform primary and secondary telecommunication network upgrades (see **Section 2.5**). Applicant-proposed measures, mitigation measures developed through the San Benito County EIR process, and avoidance and minimization measures proposed by PG&E for telecommunication network upgrades described in **Section 2.5** would be part of the action evaluated under Alternative B.

Emergency egress and access roads for the project would cross ~~Panoche Creek,~~ Las Aguilas Creek~~,~~ and three unnamed drainages on the eastern side of the project footprint that are subject to permitting under Section 404(b)(1) of the Clean Water Act. **Figure 2-7** shows the locations of these features.

2.6.1 ~~Panoche Creek and~~ Las Aguilas Creek Crossings~~s~~

Under Alternative B, the applicant would use a multi-span bridge~~s~~ to cross Las Aguilas Creek~~ and Panoche Creek~~. Whereas a single-span bridge design is anchored only at either end of the bridge and does not have any supports beneath its span, a multi-span bridge design uses one or more intermediate supports between its two ends. This allows a multi-span bridge to span greater distances. The multi-span bridge design~~s~~ proposed under Alternative B ~~are~~ is

shown on **Figure 2-14** ~~and **Figure 2-17**~~. The proposed span length~~s~~ and area impacted by ~~each of~~ the crossing~~s~~ are described in **Table 2-19**.

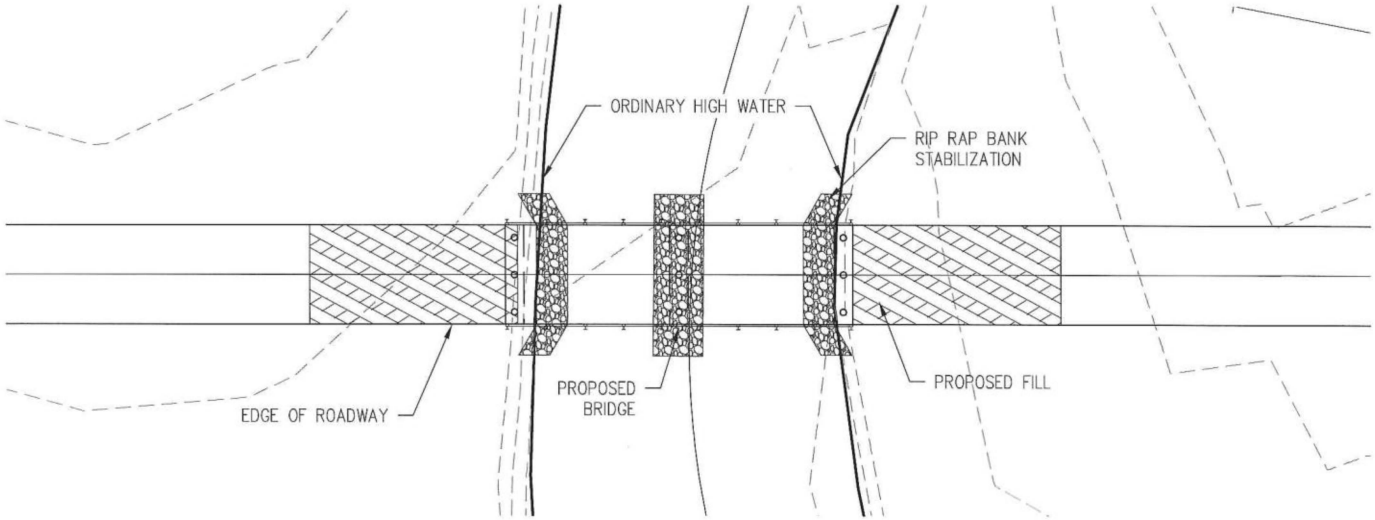
Table 2-19
Drainage Crossing Impacts, Multi-Span Bridge~~s~~

Access Road Type	Las Aguilas Crossing	~~Panoche Creek Crossing~~
Width between tops of banks	55 linear feet	~~53 linear feet~~
Width of OHWM	48 linear feet	~~20 linear feet~~
Area of Impact within OHWM		
Cut	48 square feet	~~48 square feet~~
Fill	48 square feet	~~48 square feet~~
Volume of material that would be disturbed within OHWM		
Cut	4 cubic yards	~~15 cubic yards~~
Fill	10 cubic yards	~~20 cubic yards~~
Area of impact outside of OHWM		
Outside top of bank, cut area	0 square feet	~~0 square feet~~
Outside top of bank, fill area	1,140 square feet	~~1,140 square feet~~
Within top of bank, cut area	96 square feet	~~160 square feet~~
Within top of bank, fill area	96 square feet	~~96 square feet~~
Volume of material that would be disturbed outside OHWM		
Outside top of bank, cut area	0 cubic yards	~~0 cubic yards~~
Outside top of bank, fill area	90 cubic yards	~~90 cubic yards~~
Within top of bank, cut area	15 cubic yards	~~15 cubic yards~~
Within top of bank, fill area	27 cubic yards	~~27 cubic yards~~

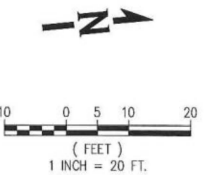
Source: Energy Renewal Partners 2014

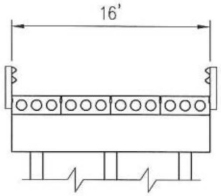
The multi-span bridge~~s~~ would have abutments near the top of the stream banks and support footings in the ephemeral stream channel (see **Figure 2-14** ~~and **Figure 2-17**~~). The multi-span bridge~~s~~ would disturb streambed and stream bank habitat during construction from excavation and from concrete foundation installation and equipment. Minimal excavation would be required for abutments and disturbance in the creek channel during footing installation. All construction equipment would operate from the proposed access road footprint except during the installation of the center footing.

The multi-span bridge~~s~~ would be designed to have minimal backwater rise from a 100-year storm at Las Aguilas Creek ~~or Panoche Creek~~. ~~They~~ It also would be designed to provide maximum water conveyance through the site. Riprap or other bank armament would be installed along the footing installations to prevent erosion or scouring along and behind the footings. This would ensure that the bridges are available for use by emergency personnel at all times, including during and immediately after ~~high~~ high-water flows.

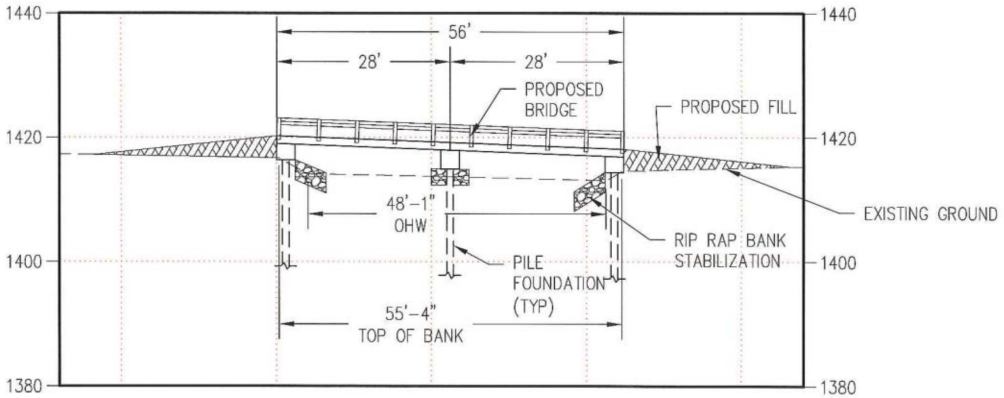


PLAN





TYPICAL SECTION
NOT TO SCALE



ELEVATION

Figure 2-14
Alternative B Bridge Crossing, Las Aguilas Creek

PANOCHE VALLEY SOLAR FARM
PLAN, ELEVATION AND TYPICAL SECTION
WHPacific

PROJECT NUMBER	DRAWING FILE NAME	DATE
035916	035916_EX02.dwg	10-08-13

Installation of the multi-span bridge~~s~~ would permanently disturb approximately 0.002 acre within the OHWM of ~~the~~ Las Aguilas Creek~~ and approximately 0.002 acre within the OHWM of Panoche Creek~~. Placing fill for the ~~two~~ bridge~~s~~ would permanently disturb upland habitat of approximately 1,140~~2,280~~ square feet (0.02~~5~~ acre). The bridge construction would temporarily disturb adjacent upland areas during construction.

No waters of the U.S. would need to be filled for electrical cables in the multi-span design because the project would use overhead cables.

2.6.2 Drainage Crossings

Under Alternative B, proposed actions in the three additional federal jurisdictional impact areas, Crossings/Impact Areas 3, 4, and 6, are the same as those described in **Section 2.5.1**.

2.7 ALTERNATIVE C (OFF-SITE ALTERNATIVE, WESTLANDS CREZ)

California's Renewable Energy Transmission Initiative (RETI) is a statewide initiative started in 2007 to help identify the transmission projects needed to accommodate the state's renewable energy goals, support future energy policy, and facilitate transmission corridor designation and transmission and generation siting and permitting (California Energy Commission 2015). The RETI effort is being supervised by a coordinating committee composed of members from the California Public Utilities Commission, California Energy Commission, California Independent System Operator, and three publicly owned utilities (Southern California Public Power Authority, Northern California Power Agency, and Sacramento Municipal Utility District; California Energy Commission 2015). The RETI is charged with assessing competitive renewable energy zones in California and in neighboring states that can provide significant electricity to California consumers by 2020, identifying those zones that can be developed in the most cost effective and environmentally benign manner, and preparing detailed transmission plans for the zones identified for development (California Energy Commission 2015). The RETI program identified competitive renewable energy zones having densities of developable resources at levels that justify building transmission to them. It also identified zones that could be developed in the most cost effective and environmentally benign manner. RETI is preparing detailed transmission plans for those zones identified for development.

The Westlands Competitive Renewable Energy Zone (Westlands CREZ) was added as a new solar CREZ in the Draft Phase 2B Report issued in April 2010 (RETI 2010). This CREZ was identified as being a moderate solar area; however, it was added because it consists of disturbed agricultural land contaminated with selenium. Also, due to the contamination, the area has few alternative uses. Finally, it is next to existing transmission and the Gates Substation (RETI 2010).

2.7.1 Site Description

The Westlands CREZ includes 35,470 acres of Westlands Water District lands in Kings and Fresno Counties. This acreage has been retired due to water

shortages and salt buildup in the soil that makes it toxic to crops (see **Figure 2-15**). The Westlands CREZ has the potential to accommodate up to 5,000 MW of solar energy generation (RETI 2010).

The Westlands Water District leases most of the Westlands CREZ to Westside Holdings, a private investment group, for commercial development of the 24,000-acre Westlands Solar Park. The park comprises most of the eastern portion of the CREZ in Kings County. Westlands Solar Park is considering developing PV solar projects that are 200 MW or larger. The Westlands Solar Park website indicates that commercial development planning is complete for the initial phase of the solar park and that solar development opportunities from 2013 to 2016 are therefore limited.

Commercial development planning for the 2015 to 2020+ timeframe is underway (Westside Holdings, LLC 2014). The project applicant has submitted requests for additional information from Westside Holdings pertaining to the availability of property to construct a solar facility, including scheduling and permitting timelines (see Appendix C of the applicant's 404(b)(1) information analysis included as **Appendix B** to the Final EIS). Because no information could be obtained on potential parcels available for lease, this alternative is evaluating all lands within the CREZ.

CAISO information reports indicated that substantial transmission upgrades to the existing transmission lines near the Westlands CREZ would not be required in order to deliver up to 800 MW to the grid (San Benito County 2010). Since that time, large energy-generating projects have been proposed. These new projects are in the CAISO interconnection queue waiting to interconnect to these transmission lines and place generated power on the grid. A technical memorandum prepared for the applicant showed nine projects currently in the queue; combined, these projects have a total power output of over 1,500 MW (Shin 2014). Because of this, it is unknown if a 247 MW solar facility would be able to interconnect to the existing electrical grid.

CAISO has approved construction of a new high-voltage Gates-Gregg transmission line, which will run through the Westlands CREZ and accommodate future solar development; this line is projected to begin operation as early as May 2020 (CAISO 2014) or as late as December 2022 (PG&E 2014).

The Westlands CREZ alternative was evaluated in the County of San Benito's EIR for the Panoche Valley Solar Project. During scoping for this EIS, agencies and the public requested that the alternative be included. This alternative meets the project purpose and need to construct an approximately 247 MW solar photovoltaic energy-generating facility and associated transmission and support facilities in the west-central portion of California's Central Valley. This area generally encompasses portions of San Benito, Merced, Madera, Fresno, and

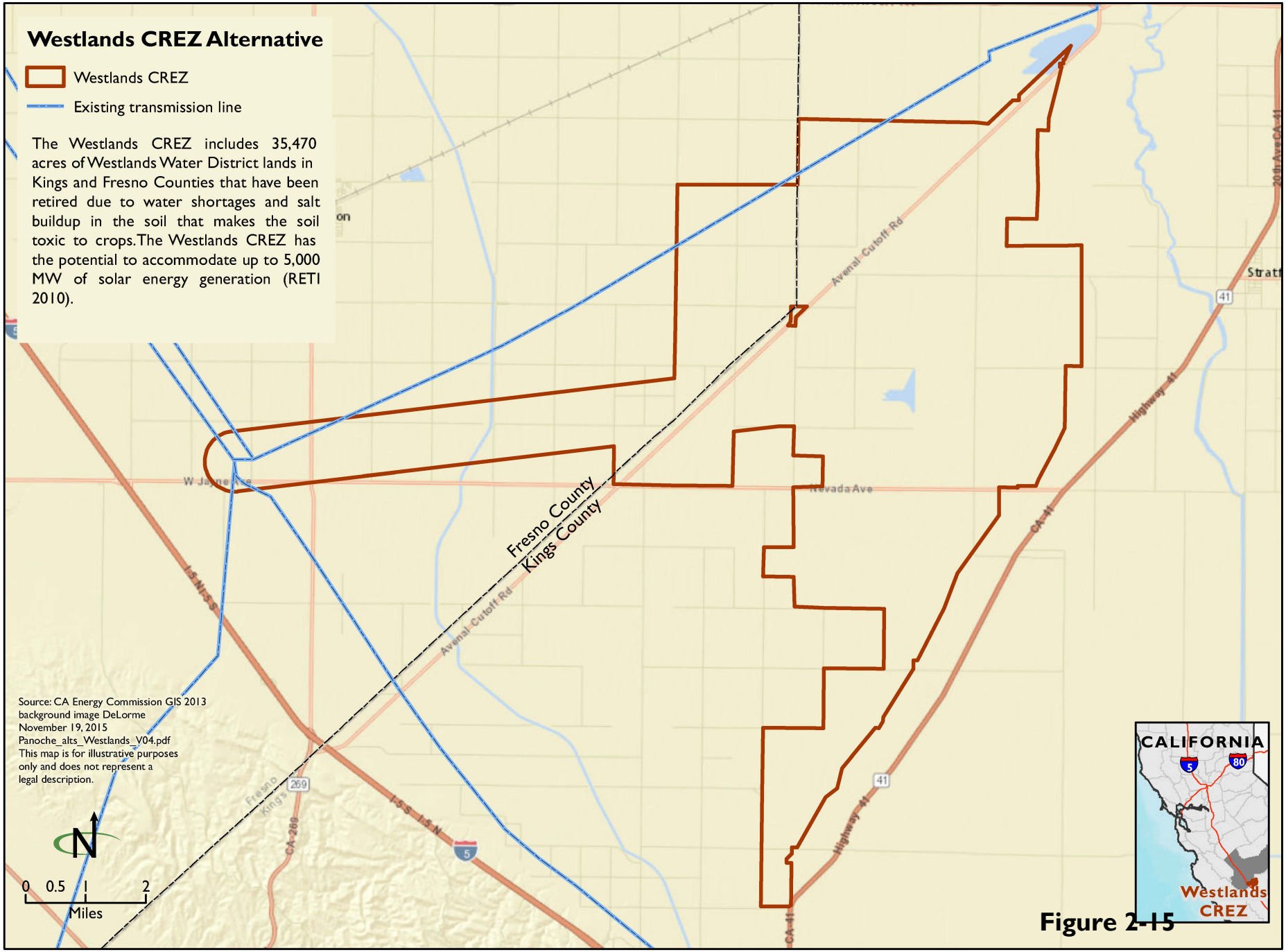

Westlands CREZ Alternative
Westlands CREZ
Existing transmission line
The Westlands CREZ includes 35,470 acres of Westlands Water District lands in Kings and Fresno Counties that have been retired due to water shortages and salt buildup in the soil that makes the soil toxic to crops.The Westlands CREZ has the potential to accommodate up to 5,000 MW of solar energy generation (RETI 2010).
Fresno County
Kings County
Avenal Cutoff Rd
Nevada Ave
Highway 41
CA-41
I-5 N
I-5 S
CA-269
Source: CA Energy Commission GIS 2013
background image DeLorme
November 19, 2015
Panoche_alts_Westlands_V04.pdf
This map is for illustrative purposes only and does not represent a legal description.
0 0.5 1 2
Miles
CALIFORNIA
Westlands CREZ

Figure 2-15

Kings Counties. USACE has not yet determined if this alternative is practicable under the Section 404(b)(1) Guidelines. Westlands Water District is the lead CEQA agency for preparing an EIR for the Westlands Solar Park Master Plan and related transmission facilities. The notice of preparation for the EIR was published in March 2013 (Westlands Water District 2013). The Draft EIR was expected to be published in March 2015, but to date has not been published (Campbell 2014).

2.7.2 Project Description

The Westlands CREZ alternative assumes a 247 MW PV solar facility with project features similar to those described in **Section 2.5**. The facility would be constructed on an unspecified 2,500-acre site within the Westlands CREZ. The Westlands CREZ alternative also assumes that applicant-proposed measures similar to those described in **Table C-1** would likely be applicable to the Westlands CREZ site.

The alternative does not propose transmission infrastructure, nor does it include county mitigation measures. This is because no conditional use permitting or master planning has been performed by Fresno or Kings County for the lands in the Westlands CREZ.

2.8 ALTERNATIVES CONSIDERED BUT REJECTED

In developing this EIS, the USACE identified and considered several additional project alternatives through the process described in **Section 2.3**, which it then eliminated from detailed study. These alternatives are described below, along with the reasons for their elimination.

2.8.1 Alternative On-Site Configurations

Alternative site configurations that were evaluated but eliminated from detailed consideration are described below.

Alternatives Greater than 247 MW

As described in **Section 1.3**, the applicant proposed and the County of San Benito evaluated a larger solar output than is currently being proposed. The initial project output of 1,000 MW, a revised project output of 420 MW, and a permitted project output of 399 MW are not being carried forward for detailed analysis in this EIS. While these alternatives would result in the same impacts to waters of the U.S. as the ~~proposed project~~applicant's preferred alternative, they would have greater impacts on federally listed threatened or endangered species.

Alternatives Less than 247 MW

The San Benito County EIR and the applicant's 404(b)(1) alternatives information evaluated project alternatives that would develop only the western side (116 MW on 1,058 acres) and the eastern side (131 MW on 1,054 acres) of the project site. These alternatives would likely reduce impacts to waters of the U.S. and sensitive biological resources, compared with the ~~proposed~~

~~project~~applicant's preferred alternative; however, they would not meet the project purpose and need of providing 247 MW of solar power.

No other configurations were found that would reduce impacts and still provide 247 MW output of solar power.

CDFW No Fill Alternative

The CDFW submitted an alternative access road plan to the Hollister Fire Department on September 22, 2014. It eliminated the two proposed road crossings at Panoche Creek and Las Aguilas Creek, which are jurisdictional waters of the U.S. (CDFW 2014). Hollister Fire Department issued a letter dated August 27, 2015, eliminating the need for the Panoche Creek crossing (Hollister Fire Department 2015). This alternative would maintain the 247 MW proposed project layout by creating gated access points along the project site's perimeter road for emergency access, rather than the ~~two~~ remaining proposed crossing~~s~~ across ~~Panoche and~~ Las Aguilas Creek~~s~~. This alternative would eliminate impacts on waters of the U.S. on the western side of the project footprint (see **Figure 2-16**) but not on the eastern side of the project footprint. The stated reason for the CDFW's proposal was that the access road plan would provide comparable or better emergency vehicle access (CDFW 2014a).

This alternative reduces on-site impacts to waters of the U.S.; however, the Hollister Fire Department, which must approve and issue a permit for project construction, responded on October 2, 2014, that it would not approve the CDFW alternative. This was because it would not provide for sufficient ingress and egress required for emergency equipment and evacuation of the site (Hollister Fire Department 2014, 2015). Because the facility could not be constructed to meet emergency ingress and egress requirements, this alternative was not carried forward for detailed consideration.

Other Alternative Crossing Technologies

In its 404(b)(1) alternatives information, the applicant identified and evaluated alternative technologies for crossing Las Aguilas ~~and Panoche~~ Creek~~s~~. These technologies included ford crossings, culvert crossings, free span bridges, multi-span bridges, and single-span bridges. The CDFW no fill alternative was also evaluated (see above). The ford crossings and culvert crossings were eliminated from further consideration, as described below. The free span bridge technology was included in the no action alternative (no permit) alternative to avoid waters of the U.S., while providing ingress and egress to the project footprint.

Ford Crossing~~s~~ Alternative

Ford crossings are commonly used in areas having wide floodplains and highly variable flows, such as desert drainages and stream channels subject to flash floods and rainstorms. The more closely the crossing matches the existing

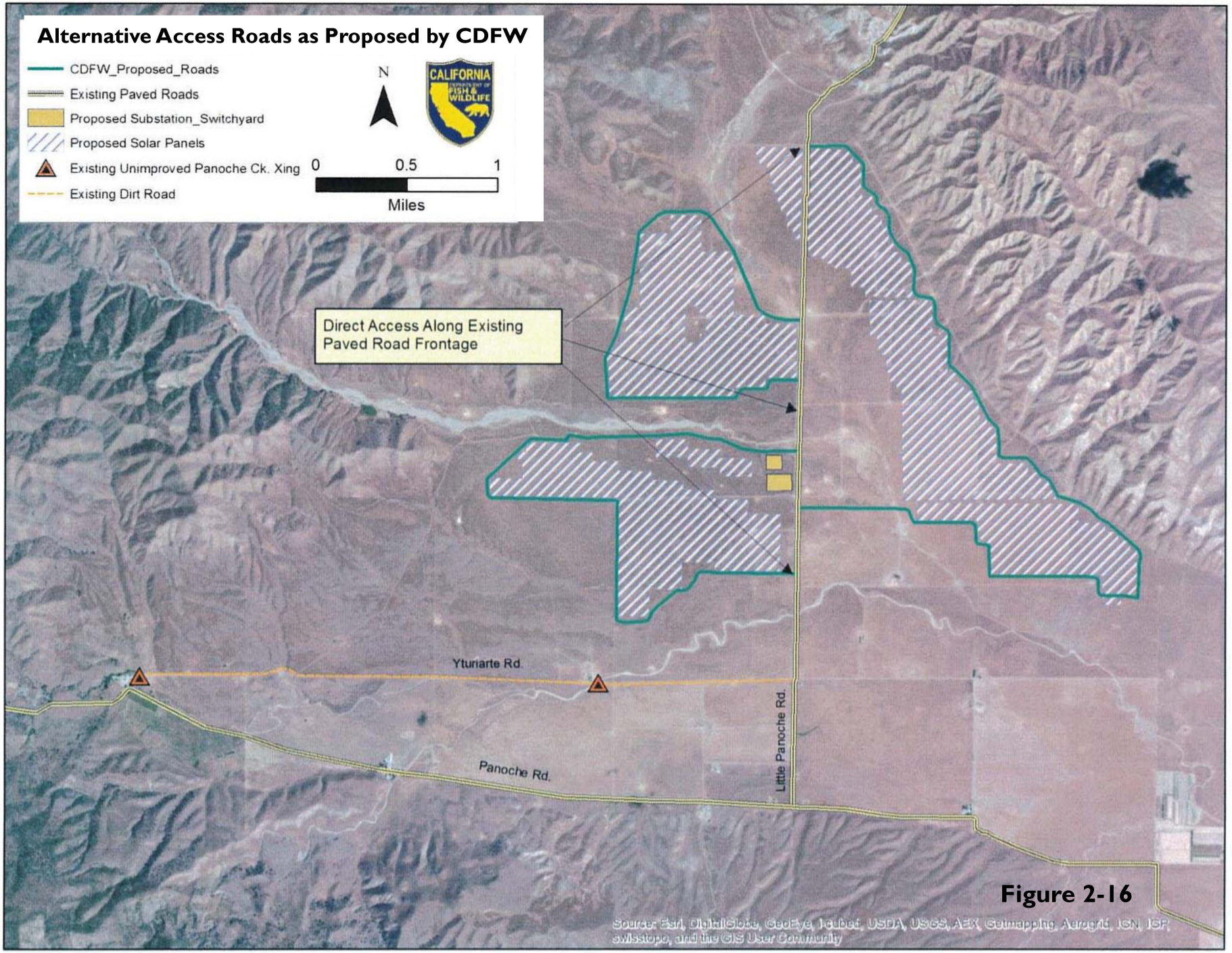

Alternative Access Roads as Proposed by CDFW
CDFW_Proposed_Roads
Existing Paved Roads
Proposed Substation_Switchyard
Proposed Solar Panels
Existing Unimproved Panoche Ck. Xing
Existing Dirt Road
N
CALIFORNIA DEPARTMENT OF FISH & WILDLIFE
0
0.5
1
Miles
Direct Access Along Existing Paved Road Frontage
Yturiarte Rd.
Panoche Rd.
Little Panoche Rd.
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Figure 2-16

channel and floodplain surface elevations, the less channel instability would occur, resulting in fewer adverse impacts on hydrology and hydraulics of the channel.

The ford crossings for the project would be at the ~~two~~ jurisdictional ephemeral stream channels (Las Aguilas ~~and Panoche~~ Creek~~s~~) at grade. A cabled, concrete block mattress would be installed at grade across the entire width of the channel and up to and beyond the OHWM. This would require excavating bank material to reduce slopes and excavating below the ground, including the ephemeral stream channel, to accommodate the concrete block mattress and to achieve an all-weather road.

Permanent fill within the OHWM would come from installing the concrete block mattresses across the channels and grading an additional eight feet on both sides of the concrete block mattress for the width of the channel. The ford crossings could be used only during dry or low water conditions and only by emergency personnel. Because the crossings would not be usable during times of moderate and high water flows, this technology would limit the ability of emergency response personnel and vehicles to access the facility during such flow conditions. The crossing would also result in greater impacts to waters of the U.S. Because the ford crossing alternative would not meet emergency ingress and egress requirements, it was eliminated from further consideration.

Culvert Crossing~~s~~ Alternative
This alternative is similar to the ford crossing alternative, except that it would use ~~two~~ a culvert crossing~~s~~ of the jurisdictional stream~~s~~ rather than a ford crossing~~s~~. The culvert crossing~~s~~ would consist of a multi-barreled, concrete box culvert.

This culvert crossing~~s~~ alternative would not meet the requirements of the Hollister Fire Department for emergency access and egress, as the crossing would be impassible during high flow events. Furthermore, the crossing design would result in greater impacts to waters of the U.S. than the ~~proposed project~~applicant's preferred alternative. For these reasons, this alternative was eliminated from further consideration.

2.8.2 Alternative Off-Site Locations

The off-site alternatives considered but eliminated are shown on **Figure 2-17**. A description of each off-site alternative and the reason it was eliminated from detailed consideration is provided below.

Brownfield-Kettleman City Alternative
The Brownfield-Kettleman City site is a 1,600-acre parcel in western Kings County. It is 3.5 miles southwest of Kettleman City and 2.5 miles west of Interstate 5. The site is in the Kettleman Hills and has slopes ranging from 1 to 50 percent. A 230 kV transmission line is approximately 3.5 miles east of the site; interconnection would require constructing a transmission line across high-relief terrain.

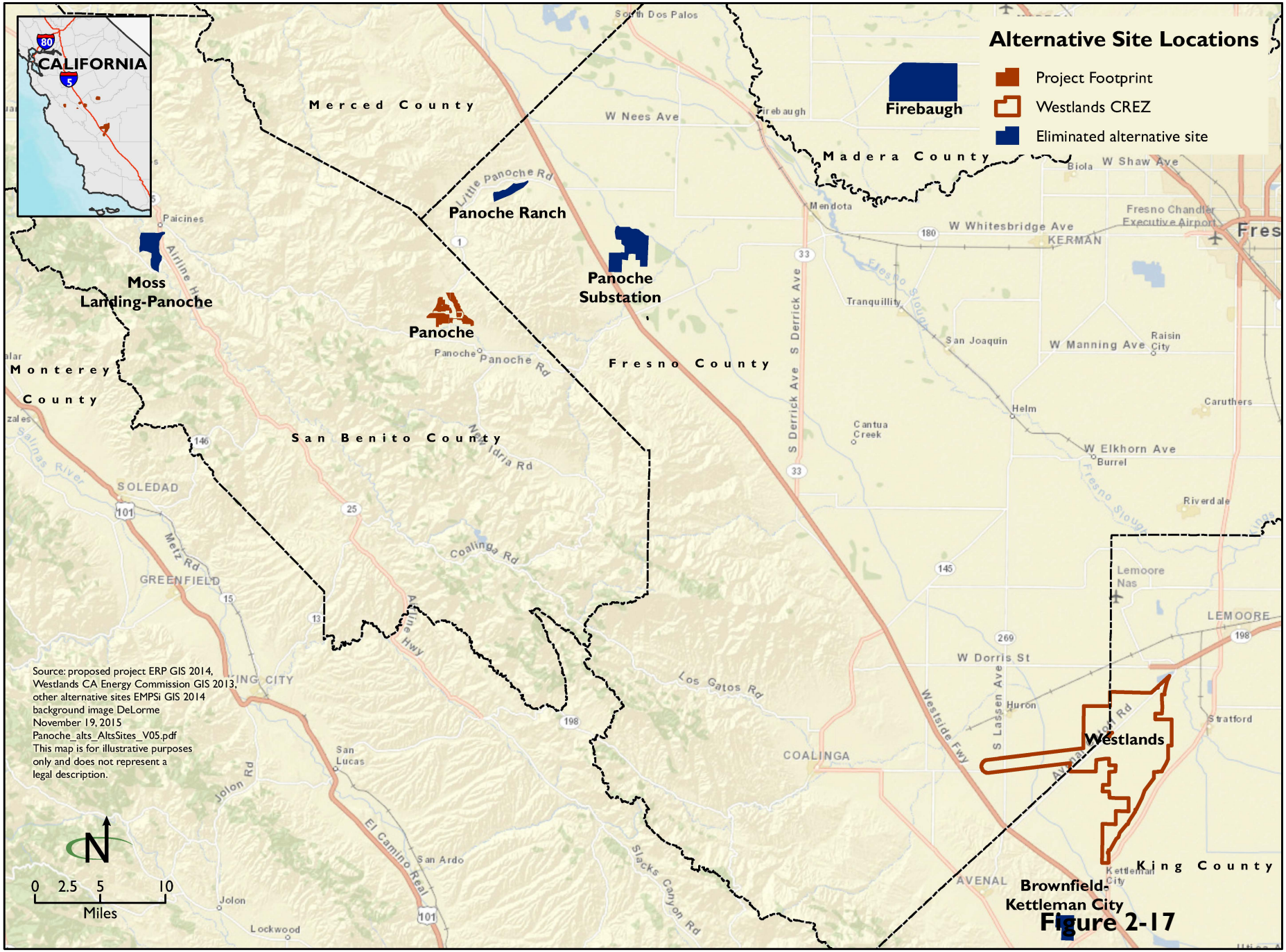

Alternative Site Locations
Project Footprint
Westlands CREZ
Eliminated alternative site
CALIFORNIA
Firebaugh
Panoche Ranch
Panoche Substation
Moss Landing-Panoche
Panoche
Westlands
Brownfield-Kettleman City
Merced County
Madera County
Fresno County
San Benito County
Monterey County
King County
Source: proposed project ERP GIS 2014, Westlands CA Energy Commission GIS 2013, other alternative sites EMPSi GIS 2014 background image DeLorme November 19, 2015 Panoche_alts_AltsSites_V05.pdf This map is for illustrative purposes only and does not represent a legal description.
0 2.5 5 10
Miles

Figure 2-17

The Brownfield-Kettleman City site was analyzed in San Benito County's EIR for the Panoche Valley Solar Facility as one of several brownfield sites in the project area and was included in the applicant's 404(b)(1) alternatives information. The site is an active commercial hazardous waste treatment, storage, and disposal facility operated by Chemical Waste Management, Inc., and owned by Waste Management, Inc.

Approximately 500 acres of the site have been approved for hazardous waste activity and are degraded; portions of the site are undeveloped. The site is used as a disposal site, and the hazardous waste facility operator (EPA Identification Number CAT000646117) applied for a permit modification in October 2013 (CDTSC 2013). The California Department of Toxic Substances Control approved this permit modification on June 23, 2014, which allowed the site to expand its landfilling activities. This effectively eliminated any potential to buy or lease the property for the construction of a PV solar facility.

The site does not contain lands within the 100-year floodplain, though it does contain ephemeral drainages in the areas of greater slope. The site may contain wetlands (USFWS 2014), potential waters of the state, though no jurisdictional delineations have been performed. The San Joaquin kit fox and blunt-nosed leopard lizard, both of which are federal listed species, have been known to occur on portions of the site.

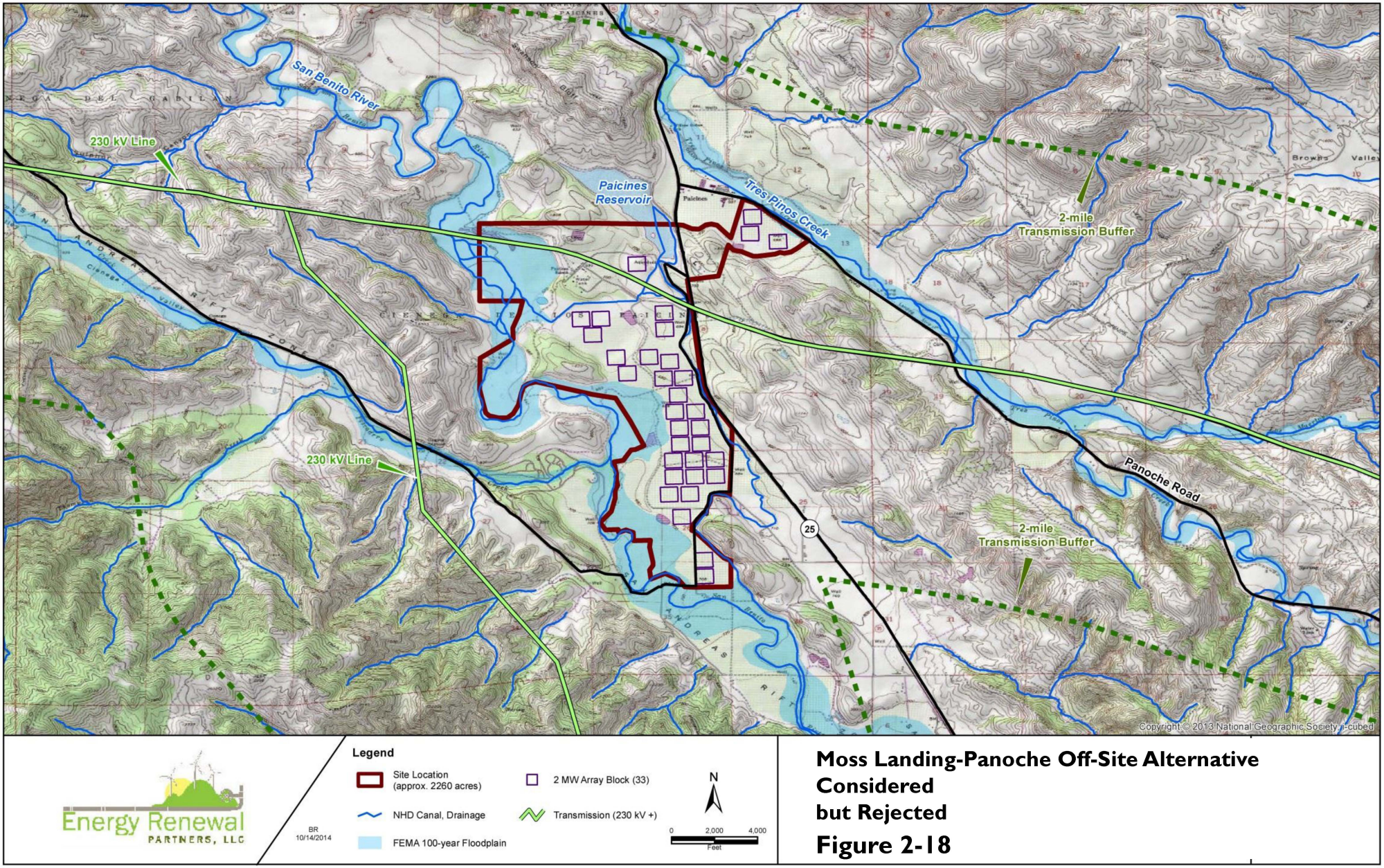
Developing the site would require significant grading because many of the slopes are greater than ~~5~~ 3 percent. The area of suitable slope would not provide the acreage needed to accommodate 247 MW of solar power output. This alternative was eliminated from detailed consideration in the EIS because it was of insufficient size to support a 247 MW PV generating facility and it is not available for sale or for long-term lease. Moreover, it is a brownfield site and development would likely disturb potentially contaminated soils.

Moss Landing-Panoche Alternative

The Moss Landing-Panoche site consists of approximately 2,260 acres southeast of Hollister. It is immediately south of the intersection of Panoche Road and State Highway 25 in the Paicines community in western San Benito County.

Most of the Moss Landing-Panoche site is farmed with row crops and vineyards. Additional areas in the site are used for livestock grazing, commercial and residential development, and undeveloped land next to the San Benito River. The site is next to the Moss Landing-Panoche 230 kV transmission line.

The National Wetland Inventory indicates that approximately 320 acres of the site may contain freshwater jurisdictional wetlands (**Figure 2-18**; USFWS 2014); the National Hydrologic dataset indicates that the site contains approximately 52 acres of water bodies and 35,000 feet of drainages and canals



Moss Landing-Panoche Off-Site Alternative Considered but Rejected

Figure 2-18

(USGS 2013). In addition, over half the site is designated as critical habitat for the California red-legged frog (USFWS 2014), and approximately 588 acres are within a 100-foot floodplain.

This alternative is next to the Moss Landing-Panoche transmission line and thus meets the transmission requirements of the purpose and need. However, because of the numerous hydrological features on this site, including rivers, wetlands, creeks, drainages, and canals, constructing a 247 MW solar facility there would likely result in greater impacts to waters of the U.S. than the ~~proposed project~~applicant's preferred alternative; thus, it was eliminated from detailed consideration.

Panoche Ranch Alternative

The Panoche Ranch site consists of approximately 820 acres of cattle-grazed pasture east of the Little Panoche Reservoir ~~Wilderness~~ Wildlife Area and northeast of Mercey Hot Springs in the Little Panoche Valley of western Fresno County. The Panoche Ranch site is on undeveloped rangeland, with an elevation range of approximately 700 to 1,000 feet above mean sea level. The site contains several ravines, and portions have slopes ranging from 6 to 65 percent. The Gates-Los Banos 500 kV transmission line intersects the site, and the Panoche to Dos Amigos 230 kV transmission line is approximately three miles to the west, across Interstate 5.

The site contains approximately 8,014 linear feet of ephemeral drainages (USGS 2013). California Natural Diversity Database records for the site show occurrences of San Joaquin coachwhip and tricolored blackbird. San Joaquin kit fox, blunt-nosed leopard lizard, and other special status species have been known to occur next to the site and thus may occur within its boundaries (USFWS 1998). Also, the site is in the Ciervo Panoche Natural Area, which is designated as a core population recovery area for San Joaquin kit fox (USFWS 1998).

The Panoche Ranch property is privately owned and is not listed for sale. The applicant contacted the landowner, who was not interested in selling or leasing the property for solar development (Energy Renewal Partners 2014). This alternative was eliminated from detailed consideration in the EIS because it was of insufficient size to support a 247 MW PV generating facility and because it was not available for long-term sale or lease.

Firebaugh Alternative

The Firebaugh site is approximately 9,264 acres northwest of Fresno, between Firebaugh Boulevard and Ripperdan Avenue in Madera County. The site is in a farming region, and most of it is open pastureland for livestock grazing on relatively flat land. The nearest 230 kV transmission line (Borden-Gregg to Henrietta) is approximately 12 miles east of the site.

The Natural Resources Conservation Service categorizes approximately one-third of the site as prime farmland by the (NRCS 2010). Hydrological features are creeks, drainages, canals, and approximately 14 miles of canals and drainages (**Figure 2-19**).

The site also includes the Gravelly Ford Canal, which could be defined as a water of the U.S. The site contains potential emergent wetlands, as noted by data obtained from California Department of Water Resources (2013). Approximately 1,085 acres could be classified as jurisdictional wetlands. The California Natural Diversity Database (CDFW 2014b) indicates the presence of several special status species, including blunt-nosed leopard lizard.

The Firebaugh property is privately owned and is not listed for sale. The applicant contacted the landowner, who was not interested in selling or leasing the property for solar development (Energy Renewal Partners 2014).

The nearest 230 kV transmission line, the Borden-Gregg to Henrietta line, is 12 miles east of the site.

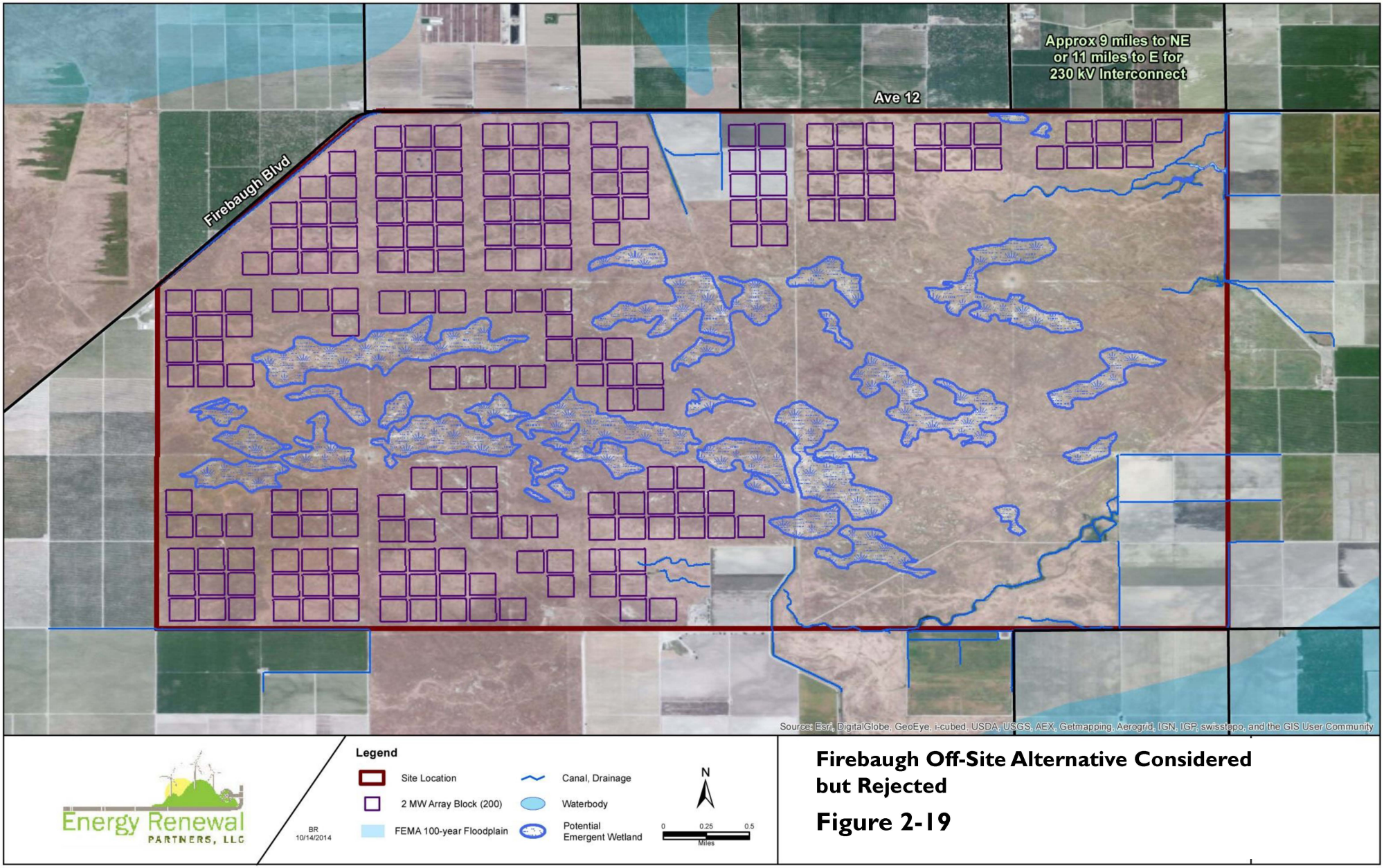
While the alternative is of sufficient size to support a 247 MW solar facility, it is not available for lease or sale (Energy Renewal Partners 2014) and is not near an existing transmission line. Therefore, this alternative has not been carried forward for detailed analysis.

Panoche Substation Alternative

The Panoche Substation site, in western Fresno County, is next to the San Luis Canal on its northeastern boundary and Interstate 5 at its southwest corner. The site is actively farmed and contains approximately 4,085 acres of fields that are used primarily for row crops; a small percentage of the land contains fruit-bearing trees, such as olives and nuts. The site has an elevation range of approximately 350 to 550 feet above mean sea level. The Los Banos-Panoche 230 kV and Los Banos-Dos Amigos-Panoche 230 kV transmission lines intersect the middle of the site, running northwest to southeast.

The National Wetlands Inventory shows several small open water ponds/holding basins along the western boundary of the site, which likely could be avoided during development. California Natural Diversity Database records (CDFW 2014b) did not identify any previous occurrences of special status plant or animal species on the site; however, the records did show occurrences of San Joaquin kit fox and other special status species within a two-mile radius.

At the request of the applicant, a real estate professional contacted most landowners in January 2014 to discuss the potential for selling the land. The parties were not interested in selling or leasing the property for solar development. The Panoche Substation site met the size and transmission proximity requirements; however, it is not available for long-term lease or purchase and thus has been eliminated from detailed consideration.



Firebaugh Off-Site Alternative Considered but Rejected

Figure 2-19

2.8.3 Alternative Technologies

Alternative technologies for providing renewable energy that were eliminated from detailed consideration are provided below. Because the overall project purpose is to construct a 247 MW solar facility, alternative forms of renewable energy, such as wind, biomass, and geothermal, were not considered in this analysis.

Distributed Solar Generation

A number of commenters requested that the EIS analyze rooftop solar as well as small solar facilities that are close to urban load centers as an alternative to utility-scale solar. A distributed solar alternative was also evaluated in the EIR for the Panoche Valley Solar Project.

Distributed generation refers to electricity that is produced at or near the point where it is used. Distributed solar can be on rooftops or the ground and typically connects to the local utility distribution grid. Because distributed solar does not require transmission to get to the location where it is used, line losses are reduced, compared to utility-scale solar facilities. Rooftop solar systems have few, if any, direct environmental impacts because no ground disturbance is required to install them. Smaller-scale solar facilities require much less land area than utility-scale facilities and thus have greater flexibility in being sited to avoid impacts. Because these facilities do not use transmission infrastructure, impacts associated with infrastructure development are also avoided.

In January 2007, California began a $3.3 billion ratepayer-funded effort to install 3,000 MW of new distributed solar generation systems and to transform the market for solar energy by reducing the cost of solar generating equipment. The CPUC's portion of the solar effort is known as the California Solar Initiative Program, which was authorized by Senate Bill 1 in 2006. The program provides rebates to consumers of the three investor-owned utilities—PG&E, Southern California Edison, and San Diego Gas & Electric—to install solar on homes and commercial buildings. Its goal is to install 1,940 MW of distributed solar generation capacity by the end of 2016. Along with other statewide solar programs, the goal is to transition the solar industry to a point where it can be self-sustaining without subsidies.

The CPUC issued its California Solar Initiative 2014 Annual Program Assessment Legislative Report in June 2014 (CPUC 2014). According to the report, an estimated 2,139 MW of distributed solar had been installed throughout California by the end of the first quarter of 2014, with 623 MW installed in 2013.

The California Energy Commission determines the scope of eligibility for the RPS program and publishes these rules in the Renewables Portfolio Standard Eligibility Guidebook, currently in its seventh edition (California Energy Commission 2013). With the adoption of the fifth edition of the guidebook in 2012, the California Energy Commission determined that distributed generation

facilities may be certified as RPS eligible. It further determined that the owners of these systems may sell renewable energy credits that have been certified by the CPUC to suppliers of retail electricity to apply toward their RPS goals.

While solar energy generated from distributed systems is eligible for California's RPS goals, the solar and utility industries have stated that cost barriers prevent customer-side renewable resources from contributing to the state's RPS goals.

The California Energy Commission requested that the scope of potential issues to be addressed in the next revision of the Renewables Portfolio Standard Eligibility Guidebook be identified. In response, the California Solar Energy Industries Association stated that, as a practical matter, selling energy and renewable energy credits is not feasible. This is due to the additional costs to bring the renewable energy credits to market (CALSEIA 2014). This is despite the fact that distributed generation facilities produce RPS-eligible energy and renewable energy credits that, as a technical matter, can be sold into the California RPS compliance market.

While the growth in distributed solar generation throughout the state, including 623 MW in 2013 alone, demonstrates that it is feasible to produce 247 MW of solar power using distributed solar generating systems, this alternative was eliminated from detailed consideration because it does not meet the overall project purpose of constructing a solar facility.

Alternative Solar Technologies

Agencies requested that the EIS examine alternative technologies. As described above, because the overall project purpose is to provide 247 MW of solar power, alternative forms of renewable energy, such as wind, biomass, and geothermal, were eliminated from detailed consideration.

The USACE considered alternative solar generating technologies commonly proposed in west-central portion of the Central Valley, primarily concentrated solar power. This uses mirrors to concentrate the sun's light energy, converting it into heat to create steam, drive a turbine, and generate electrical power. This consideration was with the assumption that the technologies would be implemented at the proposed project site.

The USACE eliminated these technologies from detailed consideration because impacts from concentrated solar and other solar technologies would be the same or greater than those described for the ~~proposed project~~applicant's preferred alternative. None of the technologies examined would reduce the land area required for a similar energy output and would require greater water use than PV solar.

Conservation and Efficiency Measures

Commenters who requested that the EIS examine a distributed generation alternative also requested an alternative that reduced energy demand through

conservation and efficiency. A conservation and energy demand reduction alternative was also evaluated in the EIR for the Panoche Valley Solar Project. This alternative was eliminated from detailed consideration because it would not satisfy the overall project purpose to construct a 247 MW solar facility in the west-central portion of the Central Valley.

Conservation and demand-side management are important for California's energy future; cost-effective energy efficiency is considered the resource of first choice for meeting the state's energy needs. However, with population growth and increasing demand for energy, conservation and efficiency measures alone are not sufficient to address all of these energy needs.